

Final

**ENVIRONMENTAL ASSESSMENT
FOR THE PROPOSED INSTALLATION, OPERATION, AND
MAINTENANCE OF PRIMARY PEDESTRIAN FENCE
NEAR LUKEVILLE, ARIZONA
U.S. BORDER PATROL
TUCSON SECTOR**



**U.S. Department of Homeland Security
U.S. Customs & Border Protection
U.S. Border Patrol
Washington, D.C.**

February 2008

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**FINDING OF NO SIGNIFICANT IMPACT
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PROJECT HISTORY: The United States (U.S.) Border Patrol (USBP) is a law enforcement entity of U.S. Customs and Border Protection (CBP), a component of U.S. Department of Homeland Security (DHS). USBP's priority mission is to prevent the entry of terrorists and terrorist weapons and to enforce the laws that protect the U.S. homeland by the detection, interdiction, and apprehension of those who attempt to illegally enter or smuggle any person or contraband across the sovereign borders of the U.S.

During recent years, illegal aliens (IA) and illegal entry into the U.S. along the U.S.-Mexico border in southern Arizona has become a severe problem. Consequently, USBP has significantly increased its emphasis on deterrence. Deterrence is achieved only when USBP has the ability to create and convey the immediate, credible, and absolute certainty of detection and apprehension. As such, tactical infrastructure components, such as fencing and roads, are a critical element in the current enforcement strategy. Developing trends such as the recognition of environmental preservation concerns and the increase of criminal trans-boundary activities (including trafficking in people, drugs, and terrorism efforts) continue to pose a border enforcement challenge and support the ever increasing need for tactical infrastructure along the international border.

In 2001, the Immigration and Naturalization Service (INS) prepared the Supplemental Programmatic Environmental Impact Statement (SPEIS) for INS and Joint Task Force 6 (JTF-6) Activities along the U.S.-Mexico Border. Additionally, in December 2003, National Park Service (NPS) issued a Final Finding of No Significant Impact (FONSI) and Final EA for the Proposed Permanent Vehicle Barriers (PVB) across the southern boundary of the Organ Pipe Cactus National Monument (OPCNM) in Pima County, Arizona. The PVBs span approximately 30 miles of the U.S.-Mexico border. The PVBs constructed by NPS have served effectively and efficiently in deterring and hindering illegal vehicle traffic on the OPCNM.

PROJECT LOCATION: The project corridor for the proposed action extends 2.1 miles to the west and 3.1 miles to the east of the Lukeville Port of Entry (POE), which encompasses approximately 5.2 miles total.

PURPOSE AND NEED: The purpose and need for the NPS 2003 Final EA was to prevent illegal vehicle traffic from degrading the biological resources of OPCNM as well as to protect the health and safety of Federal staff and visitors. The construction of the PVBs met the stated purpose and need of the NPS 2003 Final EA. However, since the completion of the NPS 2003 Final EA, shifts in IA traffic and recent Federal legislation have required changes in the designs of border tactical infrastructure. Therefore, the purpose of the proposed primary pedestrian fence is to help CBP agents and officers gain effective control of our nation's borders. CBP is developing and deploying the appropriate mix of technology, infrastructure, and personnel. In some locations, primary pedestrian fence is a critical element of border security. In alignment with Federal mandates, USBP has identified this area of the border as a location where primary pedestrian fence would contribute significantly to their priority homeland security mission. The

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need for the proposed action is to meet USBP operational requirements; provide a safer environment for USBP agents, NPS staff, and general public; deter IAs by constructing an impediment to northward movement into the U.S.; enhance the response time of USBP agents; and meet the mandates of Federal legislation (i.e., Secure Fence Act of 2006 and 2007 Department of Homeland Security [DHS] Appropriations Act [HR 5441]).

ALTERNATIVES: Two alternatives were carried forward for analysis: Alternative 1: No Action Alternative and Alternative 2: Proposed Action Alternative (i.e., Preferred Alternative).

Alternative 1: No Action Alternative: The No Action Alternative would preclude the installation of primary pedestrian fence. The existing PVBs would continue to be maintained by NPS. The No Action Alternative does not meet the project's purpose and need, but has been carried forward for analysis, as defined in 40 Code of Federal Regulations (CFR) Section 1502.14. The No Action Alternative does not meet the mandates of Federal legislation and does not enhance the detection, deterrence, or apprehensions of IAs.

Alternative 2: Proposed Action Alternative: The Proposed Action Alternative includes the construction and maintenance of 5.2 miles of primary pedestrian fence along the U.S.-Mexico border near Lukeville, Arizona. The project corridor would extend 2.1 miles to the west and 3.1 miles to the east of the Lukeville POE. Approximately 5.2 miles of primary pedestrian fence would be constructed. Construction activities would remain within the 60-foot Roosevelt Reservation with the exception of the western most 0.65 miles. The western most 0.65 miles, which would be built over Sonoyta Hill, requires a construction footprint of 150 feet. The primary pedestrian fence would be installed approximately 3 feet north of the existing PVBs with the exception of the western most 0.65 miles over Sonoyta Hill. Due to the lack of PVBs over Sonoyta Hill the fence would be constructed approximately 3 feet north of the U.S.-Mexico border within these 0.65 miles. A mesh fence design would be used and would meet design performance measures which dictate that the fence must:

- extend 15 feet above ground and 3 to 6 feet below ground;
- be capable of withstanding a crash of a 10,000-pound (gross weight) vehicle traveling at 40 miles per hour;
- be semi-transparent, as dictated by operational need;
- be vandal resistant;
- be designed to survive the extreme climate changes of a desert environment;
- not impede the natural flow of water; and
- allow for maintenance access to border monuments as required by the U.S. Section, International Boundary and Water Commission.

Furthermore, in most washes or arroyos, the fence would be designed and constructed to ensure proper conveyance of floodwaters and to eliminate the potential to cause backwater flooding on

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either side of the U.S.-Mexico border. CBP will remove debris from the fence within washes/arroyos immediately after rain events to ensure that no backwater flooding occurs.

Staging areas and turnarounds would be located within the Roosevelt Reservation. Construction access would include the use of the existing patrol road adjacent to the U.S.-Mexico border as well as South Puerto Blanco Road in order to construct the primary pedestrian fence and road over Sonoyta Hill. Additionally, the road, existing PVBs, and primary pedestrian fence would be maintained by CBP to ensure the integrity of the road and primary pedestrian fence is not compromised.

ENVIRONMENTAL CONSEQUENCES: The Proposed Action Alternative could permanently impact up to 45 acres. However, approximately 17 acres of the project corridor are previously disturbed from the construction of the existing PVBs. Impacts to wildlife, unique and sensitive areas, vegetation, and aesthetics would be expected. Wildlife movement across the international boundary would be impeded within the corridor, but these impacts would be minimal to local and regional wildlife populations. The viewshed of the OPCNM would be impacted by the construction of the pedestrian fence; however, once completed, the fence would afford greater safety to park visitors and sensitive resources. Temporary impacts to air quality, noise, and water resources are expected during construction.

CBP has determined that the Proposed Action Alternative may adversely affect the lesser long-nosed bat and Sonoran pronghorn. Consequently, CPB and the USFWS are currently in formal Section 7 consultation to address these effects and identify conservation measures. Some conservation measures for the pronghorn that have been identified and would be implemented include:

1. During construction USBP will conduct daily observations of project region as close to dawn as possible to determine if Sonoran pronghorn are within 0.62 mile of project activities. No project work will begin until pronghorn move on their own volition to a distance greater than 0.62 mile from the activities. This measure would be relevant for those activities only on the western slope of Sonoyta Hill, where there is a greater potential for pronghorn to occur.
2. The number of vehicles traveling to and from the project site for construction purposes and the number of trips per day will be minimized to reduce the likelihood of disturbing pronghorn in the area or injuring an animal on the road. The use of vehicle convoys, multi-passenger vehicles, and other methods are appropriate to project construction.
3. CBP will provide assistance to annually fill one supplemental water for Sonoran pronghorn on OPCNM per the CBP programmatic mitigation agreement with USFWS.

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Examples of other conservation measures that have been identified and would be implemented to offset effects to the lesser long-nosed bat include the following:

1. Clearly demarcate the construction footprint to ensure construction contractors do not expand the disturbance area.
2. Salvage of lesser-long nosed bat food plants from areas to be disturbed by project activities as described in the salvage plan.
3. Complete a restoration plan for various illegal trails and roads to compensate for creation or improvement of roads needed for the fence project (in addition to other concerns, this will address the control of non-native, invasive plant species) within six months of issuance of the Biological Opinion.

The potential exists for shifts in illegal pedestrian traffic to adversely impact resources outside of the project corridor; however, these impacts are not quantifiable at this time because it is unknown if, when, or where this shift in traffic may occur. Because the primary pedestrian fence would act as a force multiplier, USBP would be able to deploy agents to those areas that lack pedestrian barriers in an effort to minimize any indirect adverse impacts. Indirect beneficial impacts, such as a reduced amount of trash and debris caused by IAs, would result from the construction of the Proposed Action Alternative.

No significant adverse effects to the natural or human environment, as defined in 40 CFR Section 1508.27 of the Council on Environmental Quality's Regulations for Implementing the National Environmental Policy Act, are expected upon implementation of the Proposed Action Alternative.

MITIGATION MEASURES: Mitigation measures are presented for each resource category that would be potentially affected. Many of these measures have been incorporated as standard operating procedures by the USBP on past projects. It is USBP policy to mitigate adverse impacts through the sequence of avoidance, minimization, and compensation. These mitigation measures would be incorporated into the current Project Management Plan to be carried forward.

General Construction Activities: Best Management Practices (BMPs) would be implemented as standard operating procedures during all construction activities, and would include proper handling, storage, and/or disposal of hazardous and/or regulated materials. To minimize potential impacts from hazardous and regulated materials, all fuels, waste oils and solvents would be collected and stored in tanks or drums within a secondary containment system that consists of an impervious floor and bermed sidewalls capable of containing the volume of the largest container stored therein. The refueling of machinery would be completed following accepted industry guidelines, and all vehicles could have drip pans during storage to contain minor spills and drips. Although it will be unlikely for a major spill to occur, any spill of reportable quantities would be contained immediately within an earthen dike, and the application of an absorbent (e.g., granular,

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pillow, sock, *etc.*) would be used to absorb and contain the spill. Furthermore, any petroleum liquids (e.g., fuel) or material listed in 40 Code of Federal Register (CFR) 302 Table 302.4 of a reportable quantity must be cleaned up and reported to the appropriate Federal and state agencies. Reportable quantities of those substances listed on 40 CFR 302 Table 302.4 would be included as part of the Spill Prevention, Control, and Countermeasures Plan (SPCCP). A SPCCP would be in place prior to the start of construction and all personnel would be briefed on the implementation and responsibilities of this plan.

All construction would follow DHS management directive 5100 for waste management. All waste oil and solvents would be recycled. All non-recyclable hazardous and regulated wastes would be collected, characterized, labeled, stored, transported and disposed of in accordance with all Federal, state, and local regulations, including proper waste manifesting procedures.

Solid waste receptacles would be maintained at staging and bivouac areas. Non-hazardous solid waste (trash and waste construction materials) would be collected and deposited in the on-site receptacles. Solid waste would be collected and disposed of by a local waste disposal contractor. Waste materials and other discarded materials would be removed from the site as quickly as possible in an effort to keep the project area and surroundings free of litter.

Waste water (water used for project purposes that is contaminated with construction materials, was used for cleaning equipment and thus carries oils or other toxic materials or other contaminants in accordance with state regulations) is to be stored in closed containers on site until removed for disposal. Concrete wash water would not be dumped on the ground, but is to be collected and moved offsite for disposal.

Soils: Erosion control techniques, such as the use of straw bales (weed free straw), aggregate materials, wetting compounds (i.e., water) and revegetation with native plant species, where possible, would be incorporated with the design of the Proposed Action Alternative. In addition, other erosion control measures, as required and promulgated through the Storm Water Pollution Prevention Plan (SWPPP), would be implemented before and after construction activities.

Biological Resources: All contractors, work crews (including National Guard and military personnel), and CBP personnel in the field performing construction and maintenance activities would receive training on the habitat and habits of the species that are found in the area, including information on how to avoid impacts to the species from their activities. This training would be provided to all contractor and work crew project managers and senior military leaders who are working onsite. It would be the responsibility of these project managers and senior military leaders to ensure that their personnel are familiar with the BMPs and other limitations and constraints.

The Migratory Bird Treaty Act requires that Federal agencies coordinate with U.S. Fish and Wildlife Service (USFWS) if a construction activity would result in the "take" of a migratory bird.

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If construction or clearing activities are scheduled during the nesting season (typically March 15 through September 15) preconstruction surveys for migratory bird species would occur immediately prior to the start of any construction activity to identify active nests. If construction activities would result in the "take" of a migratory bird, then coordination with USFWS and Arizona Game and Fish Department would occur, and applicable permits would be obtained prior to construction or clearing activities.

Although no Sonoran desert tortoises or Mexican rosy boas were observed during biological surveys the potential exists for these species to occur in and near Sonoyta Hill. In the event a tortoise or boa is observed within the construction corridor during construction activities, a qualified biologist would capture and relocate the individual to an area outside of the corridor but still on Sonoyta Hill.

CBP would truck water into the project site for purposes of construction to ensure that no impacts to flora or fauna near and within Quitobaquito Springs would occur.

A salvage plan would be developed by the CBP, in close coordination with NPS, prior to construction activities. CBP will salvage as many columnar cacti as possible. CBP will develop and fund a restoration plan, in coordination with the NPS to restore illegal trails and roads on OPCNM. This will enhance bat foraging opportunities.

Materials used for on-site erosion control would be free of non-native plant seeds and other plant parts to limit potential for infestation. Additionally, all areas within the construction footprint would be monitored for a period of three years for the spread and eradication of non-native and invasive species. Construction equipment would be cleaned using BMPs prior to entering and departing the OPCNM to minimize the spread and establishment of non-native and invasive species.

Cultural Resources: Construction near the Gachado Line Camp would be monitored by a professional archeological monitor to ensure no impacts would occur. Buffers would be established around the three historic objects that lie within the proposed construction corridor in order to avoid any adverse effects to these significant cultural resources. If any cultural material is discovered during the construction efforts, then all activities would halt until a qualified archeologist can be brought in to assess the cultural remains.

Water Resources: Standard construction procedures would be implemented to minimize the potential for erosion and sedimentation during construction. All work would cease during heavy rains and would not resume until conditions are suitable for the movement of equipment and material. In accordance with regulations of the Environmental Protection Agency Phase II of the National Pollutant Discharge Elimination System stormwater program, a SWPPP would be required for stormwater runoff from construction activities greater than 1 acre and less than 5 acres. Therefore, a SWPPP would be prepared and the Notice of Intent submitted prior to the start

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of any construction. Equipment required for the construction activities would not be staged or stored within 100 feet of any wash to prevent any contamination from accidental petroleum, oil, or lubricant spills that could occur. Primary pedestrian fence constructed in washes/arroyos would be designed to ensure proper conveyance of floodwaters and to eliminate the potential to cause backwater flooding on either side of the U.S.-Mexico border. Immediately after rain events, CBP would be responsible for ensuring that debris is removed from the primary pedestrian fence within washes/arroyos to ensure that no backwater flooding occurs. Additionally, all concrete trucks would be washed and cleaned outside of the project corridor and OPCNM lands.

Air Quality: Standard construction practices such as routine watering of the construction site would be used to control fugitive dust during the construction phases of the proposed project. Additionally, all construction equipment and vehicles would be required to be kept in good operating condition to minimize exhaust emissions.

Noise: During the construction phase, short-term noise impacts are anticipated. All Occupational Safety and Health Administration requirements would be followed. On-site activities would be restricted to daylight hours with the exception of concrete pours and emergency situations. Construction equipment would possess properly working mufflers and would be kept properly tuned to reduce backfires. Implementation of these measures would reduce the expected short-term noise impacts to an insignificant level in and around the construction site.

Aesthetics: In order to minimize potential aesthetic impacts over Sonoyta Hill, CBP would use subdued and non-reflective materials to build the primary pedestrian fence. These materials are expected to blend with the landscape as it naturally rusts.

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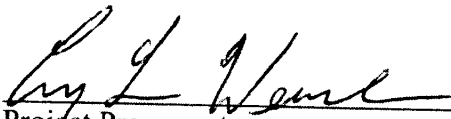
FINDING: Based upon the results of the environmental assessment and the mitigation measures to be incorporated as part of the Proposed Action Alternative, it has been concluded that the Proposed Action Alternative will not have a significant effect on the environment. Therefore, no further environmental impact analysis is warranted.



Robert F. Janson
Office of Finance Management
Acting Executive Director, Asset Management
U.S. Customs and Border Protection

2/13/08

Date



Project Proponent
Assistant Chief Patrol Agent, Craig Weinbrenner
Office of Border Patrol
Tucson Sector Headquarters

1/30/08

Date

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January 2008

Lead Agency: U.S. Customs and Border Protection
Asset Management Division
Portfolio Management Branch
Room 3.4-D
1300 Pennsylvania Avenue, N.W.
Washington, D.C. 20229

Point of Contact: Mr. George Hutchinson
U.S. Customs and Border Protection
Room 3.4-D
1300 Pennsylvania Avenue, N.W.
Washington, D.C. 20229

EXECUTIVE SUMMARY

BACKGROUND: National Park Service (NPS) issued a Finding of No Significant Impact (FONSI) and Final Environmental Assessment (EA) for the Proposed Permanent Vehicle Barriers (PVB) in 2003, which addressed the construction of PVBs across the southern boundary of the Organ Pipe Cactus National Monument (OPCNM) in Pima County, Arizona. The PVBs span approximately 30 miles of the United States (U.S.) – Mexico border. The PVBs constructed by the NPS have served effectively and efficiently in deterring and hindering illegal vehicle traffic on the OPCNM.

PURPOSE AND NEED FOR THE PROPOSED PROJECT: The purpose of the proposed primary pedestrian fence is to help U.S. Customs and Border Protection (CBP) agents and officers gain effective control of our nation's borders. CBP is developing and deploying the appropriate mix of technology, infrastructure, and personnel. In some locations, primary pedestrian fence is a critical element of border security. In alignment with Federal mandates, U.S. Border Patrol (USBP) has identified this area of the border as a location where primary pedestrian fence would contribute significantly to their homeland security mission. The need for the proposed action is to meet USBP operational requirements; provide a safer environment for USBP agents, NPS staff, and general public; deter illegal aliens (IAs) by constructing an impediment to northward movement into the U.S.; enhance the response time of USBP agents; and meet the mandates of Federal legislation (i.e., Secure Fence Act of 2006 and 2007 Department of Homeland Security [DHS] Appropriations Act [HR 5441]).

PROPOSED ACTION: The Proposed Action Alternative includes the construction and maintenance of 5.2 miles of primary pedestrian fence along the U.S.-Mexico border near Lukeville, Arizona. Approximately 3.1 miles and 2.1 miles of primary pedestrian fence would be installed on the east and west sides of the Lukeville POE, respectively. The primary pedestrian fence would be constructed approximately 3 feet north of the existing PVBs with the exception of 0.65 miles over Sonoyta Hill. Construction activities would remain within the 60-foot Roosevelt Reservation with the exception of the western most 0.65 miles. The western most 0.65 miles, which would be built over Sonoyta Hill, requires a construction footprint of 150 feet and the fence would be built approximately 3 feet north of the U.S.-Mexico border due to no PVBs existing over Sonoyta Hill.

The design selected for the primary pedestrian fence is a mesh design. It would be 15 feet high and capable of withstanding a crash from a 10,000-pound (gross weight) vehicle traveling at 40 miles per hour. Currently, an existing patrol road parallels most of the border in the project corridor, which would also be used for access during construction of the primary pedestrian fence and as a maintenance road when construction is completed. However, this road would

need to be widened by approximately 30 feet to accommodate construction equipment needed to install the fence. This construction/maintenance road would encompass the entire 60-foot wide Roosevelt Reservation once completed. In addition, a new road would need to be constructed in order to install the primary pedestrian fence over Sonoyta Hill; this new road would be in the westernmost 0.65 mile of the project corridor. CBP will be responsible for maintaining the road, existing PVBs, and primary pedestrian fence.

ALTERNATIVES TO
THE PROPOSED
ACTION:

Alternatives addressed in the EA include: Alternative 1: No Action Alternative, which would preclude the construction of any primary pedestrian fence, and Alternative 2: Proposed Action Alternative (i.e., Preferred Alternative). The No Action Alternative would not fully meet the mandate established by Federal legislation and only incrementally enhances the detection, deterrence and apprehension of IAs.

ENVIRONMENTAL
IMPACTS OF THE
PROPOSED
ACTION:

The Proposed Action Alternative would potentially result in permanent impacts of up to 45 acres. However, approximately 17 acres of the project corridor have been previously disturbed from the construction of the existing PVBs. Direct impacts to vegetation, wildlife, unique and sensitive areas, and aesthetics would be expected. Wildlife movement across the international boundary would be impeded within the corridor, but these impacts would be minimal to local or regional wildlife population. The viewshed of the OPCNM would be impacted by the construction of the primary pedestrian fence; however, once completed, the primary pedestrian fence would afford greater safety to park visitors and sensitive resources. Additionally, mitigation measures would be implemented (i.e., using subdued and non-reflective materials) to ensure impacts to aesthetics would not be considered significant. No significant impacts on any human or natural resources either locally or regionally would be expected upon implementation of the Proposed Action Alternative.

CONCLUSIONS:

Based upon the results of this EA, it has been concluded that the Proposed Action Alternative would not have a significant adverse effect on the environment, and no additional National Environmental Policy Act documentation is warranted.

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SECTION 1.0
INTRODUCTION AND PURPOSE AND NEED

1.0 INTRODUCTION AND PURPOSE AND NEED

1.1 INTRODUCTION

This Environmental Assessment (EA) addresses the potential effects, beneficial and adverse, of the proposed installation of 5.2 miles of primary pedestrian fence near Lukeville, Arizona. The action is proposed by United States (U.S.) Border Patrol (USBP) Tucson Sector and would occur in the Ajo Station's Area of Operation (AO). This EA is tiered from the 2001 Supplemental Programmatic Environmental Impact Statement (SPEIS) for Immigration and Naturalization Service (INS) and Joint Task Force 6 (JTF-6) Activities along the U.S.-Mexico Border (INS 2001). The SPEIS was developed in an attempt to provide the public with USBP's assessment of impacts as they relate to potential future infrastructure projects. Mentioned in the SPEIS is the potential to construct fence, roads, and other infrastructure along the U.S.-Mexico border including Arizona. In addition, information was gleaned from and incorporated by reference from the National Park Service (NPS), Organ Pipe Cactus National Monument (OPCNM) Finding of No Significant Impact (FONSI) and Final EA for the Proposed Permanent Vehicle Barriers (PVB) December 2003 (NPS 2003). The OPCNM Final EA addressed the proposed construction of approximately 30 miles of PVB along OPCNM's U.S.-Mexico border.

This EA was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality (CEQ) Regulations implementing NEPA (Title 40 of the U.S. Code of Federal Regulations [CFR], Parts 1500-1508), and Department of Homeland Security (DHS) Management Directive 5100.1, which is the Environmental Planning Program Directive that outlines DHS's procedures for the implementation of NEPA.

1.2 HISTORY AND BACKGROUND

1.2.1 CBP History

In 1924, Congress created USBP to serve as the law enforcement entity of INS, which it did until November 25, 2002. With the passage of the Homeland Security Act of 2002 (Public Law 107-296), DHS was established to reorganize Federal law enforcement and border protection agencies into a single department. USBP was officially transferred into the Office of Border Patrol, under DHS, U.S. Customs and Border Protection (CBP), on March 1, 2003.

1.2.2 CBP Strategic Intent and Priorities

The priority mission of CBP is to prevent terrorists and terrorist weapons from entering the U.S. This priority mission involves maintaining a diverse, multi-layered approach, which includes improving security at the international borders and ports of entry (POE). It also extends the physical zone of security beyond the Nation's physical borders so that U.S. borders are the last line of defense, not the first (CBP 2003). As part of this mission, CBP has implemented its *Comprehensive Strategy to Address the Threat of Nuclear and Radiological Terrorism* to identify and seize terrorists' assets and funding sources and enhance the support infrastructure to further develop targets and analyses.

In addition to carrying out its priority mission, CBP must fulfill its traditional missions including:

- controlling the sovereign borders of the U.S. by apprehending individuals attempting to enter the U.S. illegally;
- stemming the flow of illegal drugs and other contraband;
- protecting the Nation's agriculture and economic interest from harmful pests and diseases;
- facilitating international trade;
- collecting import duties; and
- enforcing U.S. trade, immigration and other laws of the U.S. at and beyond the Nation's borders (CBP 2003).

Hereinafter, any individual, including terrorists and smugglers, who attempt to illegally enter the U.S. between POEs is referred to as an illegal alien (IA).

The mission of USBP is to strengthen the U.S. borders to prevent the entry of IAs, terrorist weapons, narcotics and other contraband. The principle objective of USBP is to apply appropriate levels of USBP personnel, intelligence, technology, and infrastructure resources to increase the level of operational effectiveness until the likelihood of apprehension is sufficient to be an effective deterrent that conveys an absolute certainty of detection and apprehension.

During recent years, USBP has significantly increased its emphasis on deterrence. Deterrence is achieved only when USBP has the ability to create and convey the immediate, credible, and absolute certainty of detection and apprehension. As such, tactical infrastructure components, such as pedestrian barriers and roads are a critical element. Trends such as the continued urbanization and industrialization of the immediate border, the recognition of environmental

preservation concerns, and the increase of criminal trans-boundary activities (including trafficking in people, drugs, and terrorism efforts) continue as a border enforcement challenge and increase the need for tactical infrastructure along the international borders.

1.2.3 Background

NPS issued a Final EA and FONSI in 2003, which addressed the construction of PVBs along the southern boundary of OPCNM (NPS 2003). The PVBs extend across the entire southern boundary of OPCNM along the U.S.-Mexico border except over Sonoyta Hill. All of the construction activities completed while building the PVBs were located within the 60-foot Roosevelt Reservation. To date, the entire 30 miles of planned PVBs have been completed by NPS. The PVBs constructed by NPS have served effectively and efficiently in deterring and hindering illegal vehicle traffic on OPCNM; however, PVBs do not deter pedestrian traffic.

1.3 LOCATION OF THE PROPOSED PROJECT

The general location of the proposed project was previously discussed in the December 2003 Final EA (NPS 2003) and is incorporated herein by reference. The project corridor is located along the U.S.-Mexico border near Lukeville, Arizona (Figure 1-1).

1.4 PURPOSE AND NEED

The purpose and need for the NPS 2003 Final EA was to prevent illegal vehicle traffic from degrading the biological resources of OPCNM as well as to protect the health and safety of Federal staff and visitors. The construction of the PVBs met the stated purpose and need of the NPS 2003 Final EA. However, since the completion of the NPS 2003 Final EA, shifts in IA traffic and recent Federal legislation has required changes in the designs of border tactical infrastructure. The purpose of the proposed primary pedestrian fence is to help CBP agents and officers gain effective control of our nation's borders.

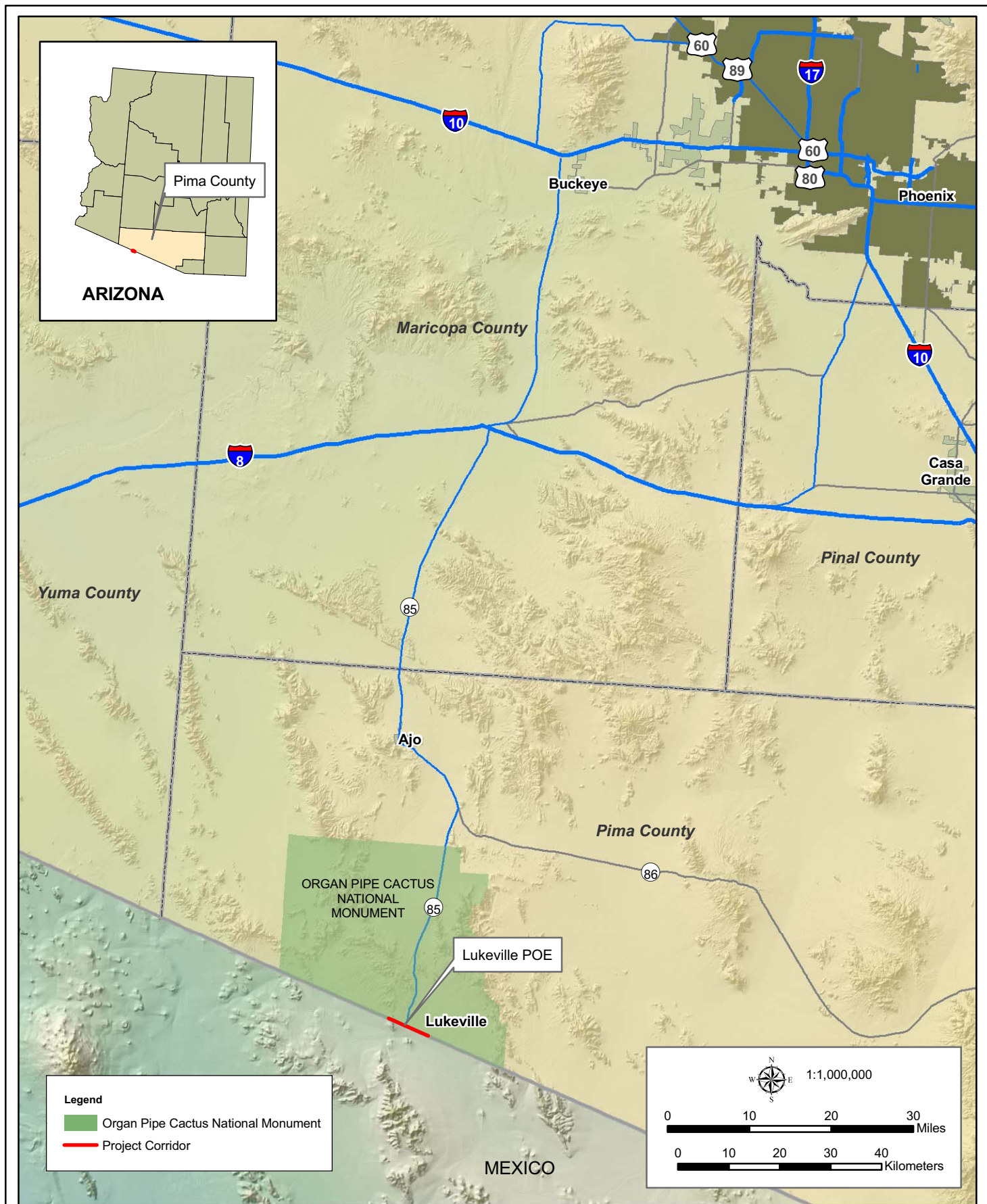


Figure 1-1: Vicinity Map



August 2007

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CBP is developing and deploying the appropriate mix of technology, infrastructure, and personnel. In some locations, primary pedestrian fence is a critical element of border security. In alignment with Federal mandates USBP has identified this area of the border as a location where primary pedestrian fence would contribute significantly to their priority homeland security mission. The need for the proposed action is to meet USBP operational requirements; provide a safer environment for USBP agents, NPS staff, and general public; deter IAs by constructing an impediment to northward movement into the U.S.; enhance the response time of USBP agents; and meet the mandates of Federal legislation (i.e., Secure Fence Act of 2006 and 2007 Department of Homeland Security [DHS] Appropriations Act [HR 5441]).

1.5 APPLICABLE ENVIRONMENTAL STATUTES AND REGULATIONS

The applicable environmental statutes and regulations for this EA are similar to those of the December 2003 Final EA (NPS 2003) and are hereby incorporated by reference. In summary, this EA was prepared in accordance with, but not limited to the NEPA of 1969; Endangered Species Act (ESA) of 1973, as amended; the National Historic Preservation Act (NHPA) of 1966, as amended; and the Archeological and Historical Preservation Act of 1974, as amended. In addition to these environmental statutes and regulations this EA is guided by Federal legislation, DHS's Management Directive 5100.1, Clean Air Act (CAA), Clean Water Act (CWA), Noise Control Act, Resource Conservation and Recovery Act, and Toxic Substances Control Act. Executive Orders (E.O.) bearing on the proposed action include E.O. 11988 (*Floodplain Management*), E.O. 11990 (*Protection of Wetlands*), E.O. 12088 (*Federal Compliance with Pollution Control Standards*), E.O. 12580 (*Superfund Implementation*), E.O. 12898 (*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*), E.O. 13045 (*Protection of Children from Environmental Health Risks and Safety Risks*), E.O. 13101 (*Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition*), E.O. 13123 (*Greening the Government Through Efficient Energy Management*), E.O. 13148 (*Greening the Government Through Leadership in Environmental Management*), E.O. 13175 (*Consultation and Coordination with Indian Tribal Governments*), and E.O. 13186 (*Responsibilities of Federal Agencies to Protect Migratory Birds*).

1.6 REPORT ORGANIZATION

This report is organized into 10 major sections including this introduction. Section 2.0 describes all alternatives considered for the project. Section 3.0 discusses the environmental features potentially affected by the project, while Section 4.0 discusses the environmental consequences for each of the viable alternatives. Cumulative impacts are discussed in Section 5.0, mitigation measures are discussed in Section 6.0, and public comments and the notice of Availability (NOA) are presented in Section 7.0. Sections 8.0, 9.0, and 10.0 present a list of the references cited in the document, a list of acronyms and abbreviations, and a list of the persons involved in the preparation of this document. Appendix A contains the March 2006 Memorandum of Understanding while Appendix B is a list of state and Federal protected species for Pima County. Appendix C contains correspondence that was sent and received during the preparation of this EA. Appendix D contains the air quality calculations for the Proposed Action Alternative.

SECTION 2.0
ALTERNATIVES

2.0 ALTERNATIVES

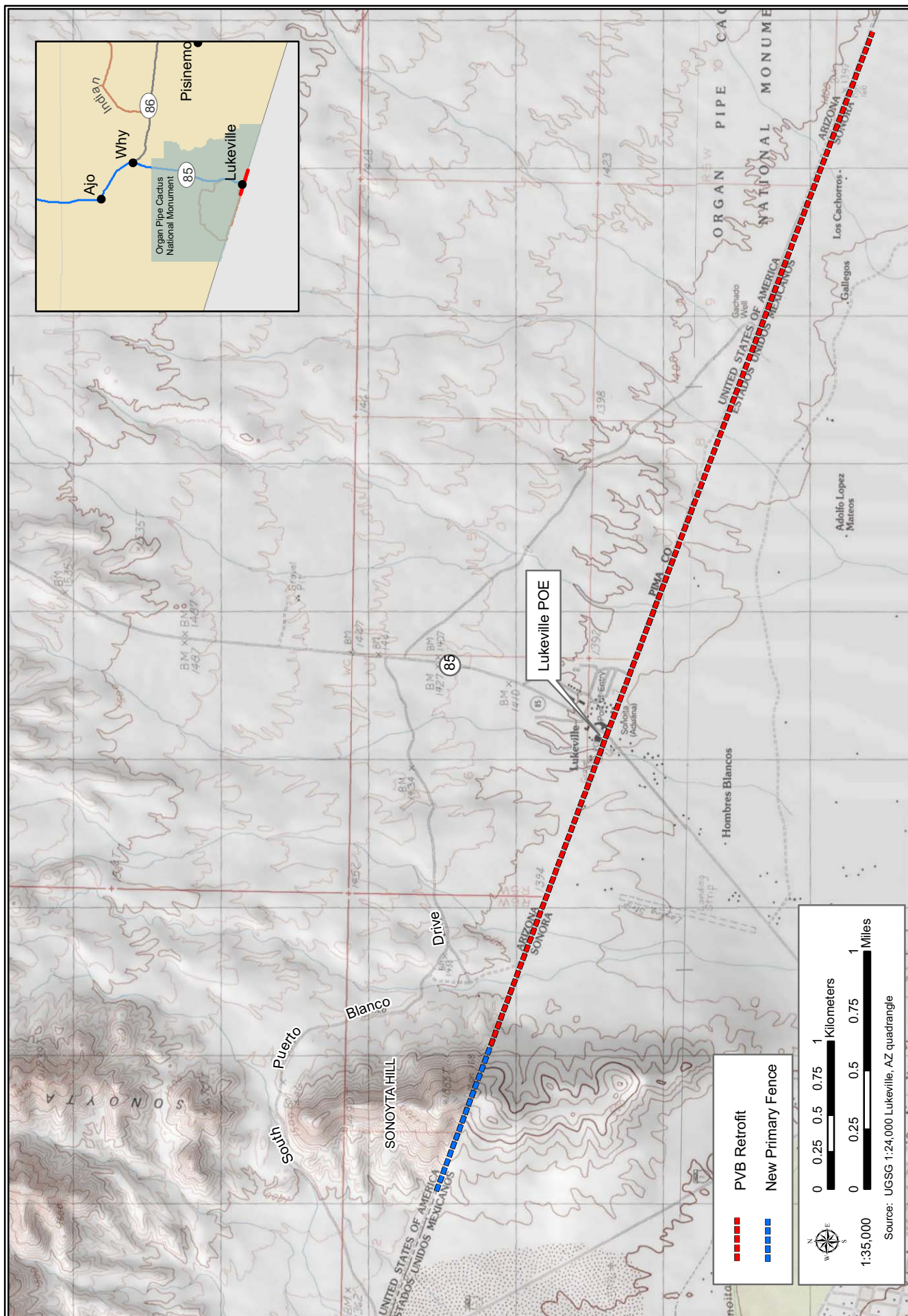
Three alternatives were identified and considered during the planning stages of the proposed project: No Action Alternative, Proposed Action Alternative, and Technology in Lieu of Tactical Infrastructure Alternative. The Proposed Action Alternative and Preferred Action Alternative are synonymous terms; however, for the purposes of this EA they will be referred to as the Proposed Action Alternative. The following paragraphs describe the alternatives considered.

2.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, no construction activities would occur. The existing PVBs would continue to be maintained by NPS. The No Action Alternative does not meet the project's purpose and need, but has been carried forward for analysis, as required by CEQ regulations. The No Action Alternative will form the basis for evaluation of other action alternatives.

2.2 PROPOSED ACTION ALTERNATIVE

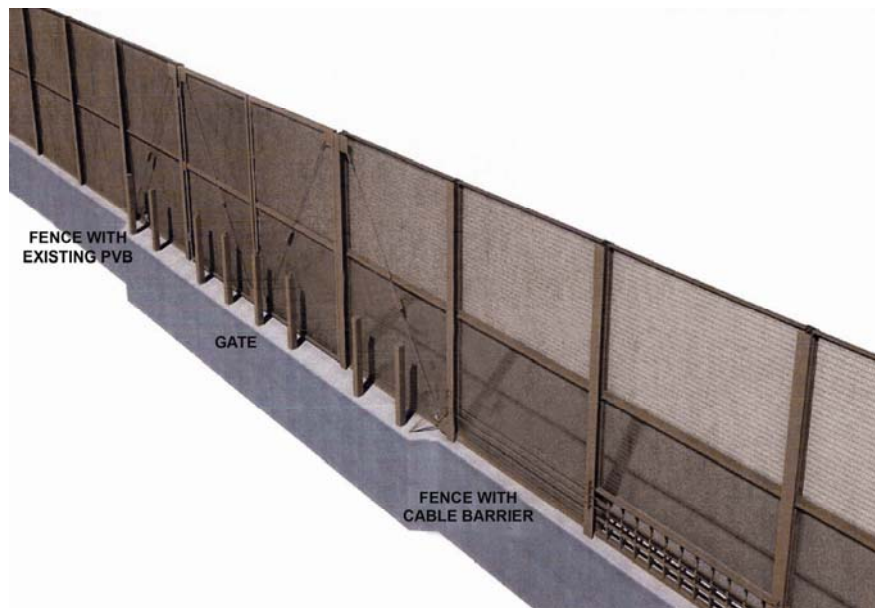
Primary pedestrian fencing has proved invaluable in denying quick access to concealment and escape opportunities for IAs inside the U.S. It performs a dual role in border security by acting as a visual deterrent and a formidable physical barrier, impeding IAs and increasing the window of time USBP agents have to respond to IAs attempting to breach the U.S.-Mexico border. The Proposed Action Alternative includes the construction and maintenance 5.2 miles of primary pedestrian fence along the U.S.-Mexico border near Lukeville, Arizona (Figure 2-1). The project corridor would extend 2.1 miles to the west and 3.1 miles to the east of the Lukeville POE. Approximately 5.2 miles of primary pedestrian fence would be constructed. Construction activities would remain within the 60-foot Roosevelt Reservation with the exception of the westernmost 0.65 miles. The westernmost 0.65 miles, which would be built over Sonoyta Hill, requires a construction footprint of 150 feet.



The primary pedestrian fence would be installed approximately 3 feet north of the existing PVBs with the exception of the Sonoyta Hill portion. Due to the lack of PVBs in this area, the fence would be constructed approximately 3 feet north of the U.S.-Mexico border. An example of the mesh fence design is shown in Exhibit 2-1. This design would be used and would meet design performance measures, which dictate that the fence must:

- extend 15 to 18 feet above ground and 3 to 6 feet below ground;
- be capable of withstanding a crash of a 10,000-pound (gross weight) vehicle traveling at 40 miles per hour;
- be semi-transparent, as dictated by operational need;
- be vandal resistant;
- be designed to survive the extreme climate changes of a desert environment;
- not impede the natural flow of water; and
- allow for maintenance access to border monuments as required by the U.S. Section, International Boundary and Water Commission.

Exhibit 2-1. Example of Mesh Fence Design



Furthermore, in most washes or arroyos, the primary pedestrian fence would be designed and constructed to ensure proper conveyance of floodwaters and to eliminate the potential to cause backwater flooding on either side of the U.S.-Mexico border. CBP will remove debris from the

fence within washes/arroyos immediately after rain events to ensure that no backwater flooding occurs.

Staging areas and turnarounds would be located within the Roosevelt Reservation. Construction access would include the use of the existing patrol road adjacent to the U.S.-Mexico border as well as South Puerto Blanco Road in order to construct the primary pedestrian fence and road up and over Sonoyta Hill. Additionally, the road, existing PVBs, and primary pedestrian fence would be maintained by CBP to ensure the integrity of the road, PVBs, and primary pedestrian fence is not compromised.

2.3 OTHER ALTERNATIVES EVALUATED BUT ELIMINATED FROM CONSIDERATION

One other alternative was evaluated but eliminated from further consideration due to impediments to construction or failure to meet the purpose and need for the project. This alternative is discussed in the following subsection.

2.3.1 Technology in Lieu of Tactical Infrastructure

Under this alternative, USBP would use radar, cameras, lights, and other technology to identify illegal border crossings. The use of technology is a critical component of *SBI_{net}* and an effective force multiplier that allows USBP to monitor large areas and deploy agents to where they will be most effective. However, in the more populated areas within the Tucson Sector, physical barriers represent the most effective means to control illegal entry into the U.S. The use of technology alone would not provide a practical solution to achieving effective control of the border in USBP Tucson Sector. Therefore, this alternative would not meet the purpose and need as described in Section 1.4 and will not be carried forward for further analysis.

2.4 CONSTRUCTION PERSONNEL AND EQUIPMENT

Private contractors would complete the proposed construction and installation of the infrastructure components. All project personnel will not exceed a speed limit of 25 miles per hour within the OPCNM during construction and maintenance related activities. The project is expected to be completed by December 2008. Equipment staging would be located within previously disturbed areas to minimize potential effects to the environment. The equipment

anticipated to be used during the construction includes a backhoe, trencher, auger, crane, bulldozer, front-end loader, flatbed truck, water truck and roller/compactor.

2.5 SUMMARY

The two alternatives carried forward for analysis are the No Action Alternative and Proposed Action Alternative. An alternative matrix (Table 2-1) compares the two alternatives relative to the purpose and need. Table 2-2 presents a summary matrix of the impacts from the three alternatives analyzed and how they affect the environmental resources in the region.

Table 2-1. Relationship between Purpose and Need and Project

Requirements	Alternative 1: No Action Alternative	Alternative 2: Proposed Action Alternative
Provide a safer work environment for the USBP agents	PARTIALLY	YES
Deter illegal pedestrian traffic by constructing an impediment to northward movement	NO	YES
Satisfy Federal legislation	NO	YES

Table 2-2. Summary Matrix

Affected Environment	No Action Alternative	Proposed Action Alternative
Land Use	No impacts are expected.	Approximately 7 acres (0.65 mile X 90 feet) of NPS lands over Sonoyta Hill would be used as USBP infrastructure. The lands would remain as NPS lands; however, USBP would be allowed use of the 7 acres as articulated through a Special Use Permit. The remainder of the project corridor is within the Roosevelt Reservation; therefore, land use would not change in these areas. No significant impacts are expected as the indirect beneficial impacts would greatly outweigh the minor direct impacts. No significant impacts are expected as the indirect beneficial impacts would greatly outweigh the minor direct impacts.
Soils	No impacts are expected.	Up to 45 acres of soils could be permanently impacted. No prime farmlands would be impacted. Indirect impacts could occur to areas outside the project corridor. No significant impacts would occur as a result of the Proposed Action Alternative.
Vegetation	No impacts are expected.	Up to 28 acres of vegetation would be permanently altered. The remaining 17 acres of the total footprint of the project corridor are previously disturbed. The 28 acres that would be affected are comprised of vegetation communities that are regionally and locally common. Thus, no significant impacts would be expected. Indirect impacts could occur to areas outside the project corridor.
Wildlife	No impacts are expected.	If implemented, approximately 45 acres of wildlife habitat could be impacted; however, approximately 17 acres within the project corridor is previously disturbed from the construction of the existing PVBs. Therefore, no significant impacts are expected. Wildlife movement across the international boundary would be impeded within the corridor; however, these impacts would be minimal to wildlife, locally or regionally. Indirect impacts could occur to areas outside the project corridor.
Unique and Sensitive Areas	No impacts are expected.	The project footprint is primarily located within the Roosevelt Reservation. The viewshed of the OPCNM would be impacted by the construction of the primary pedestrian fence; however, once completed, the primary pedestrian fence will afford greater safety to park visitors and sensitive resources. Indirect impacts could occur as construction is ongoing or by IAs outside of the corridor if they try to circumvent the proposed infrastructure.
Wilderness	No impacts are expected	No direct impacts are expected. Indirect impacts could occur if IAs attempt to circumvent the proposed infrastructure. USBP would use the primary pedestrian fence as a force multiplier, which would all USBP to deploy agents to areas lacking infrastructure, thus, minimizing any indirect impacts.

Table 2-2, continued

Affected Environment	No Action Alternative	Proposed Action Alternative
Protected Species	No impacts are expected.	Although approximately 17 acres of the total project footprint (45 acres) have been previously disturbed due to the construction of the existing PVBs, food sources (columnar cacti) for the lesser long-nosed bat (<i>Leptonycteris curasoae yerbabuenae</i>) and habitat for the Sonoran pronghorn (<i>Antilocapra americana sonoriensis</i>) would be impacted. The Proposed Action Alternative may affect and is likely to adversely affect these two species. Section 7 consultation is on-going with the U.S. Fish and Wildlife Service (USFWS); conservation measures have been identified and would be implemented to off-set impacts to the bat and pronghorn. Indirect impacts could occur to habitat or species outside of the corridor if IAs attempt to circumvent the proposed infrastructure.
Cultural Resources	No impacts are expected.	No cultural resources would be impacted either directly or indirectly.
Air Quality	No impacts are expected.	Pima County is in attainment for all criteria pollutants. Minor, temporary impacts would occur during construction but would cease upon completion of the Proposed Action Alternative.
Water Resources	No impacts are expected.	Up to 11.4 acre-feet of groundwater would be used for dust suppression and mixing concrete. All water will be trucked into the project site from sources north of the OPCNM (i.e., Why, Ajo, or Gila Bend). No deficit would occur to the region's available groundwater sources; therefore, no significant impacts to water resources would occur.
Socioeconomics	No impacts are expected.	Minor, temporary impacts could occur. Indirect beneficial impacts would occur within the region due to the reduction of IA foot traffic and the associated societal cost.
Noise	No impacts are expected.	The project corridor is located adjacent to the busy Lukeville POE; therefore, the impacts would be minimal and temporary. No significant impacts to ambient noise levels would occur.
Aesthetics	No impacts are expected.	The project footprint is located within or adjacent to previously disturbed areas. The visibility of the primary pedestrian fence from within the OPCNM would have minimal adverse impacts; however, the beneficial impacts from the reduction of IAs and associated trash would be expected to outweigh any adverse impacts. No significant impacts would occur. Indirect impacts could occur outside of the project corridor.

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SECTION 3.0
AFFECTED ENVIRONMENT

3.0 AFFECTED ENVIRONMENT

In accordance with CEQ regulations (40 CFR § 1502.15), this chapter of the EA describes the baseline environment of the area(s) that would be affected by the viable alternatives under consideration. Data and analyses are commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced. For those resources that have not changed, or where updates were not required, the discussions presented in the NPS 2003 Final EA are incorporated by reference (NPS 2003). Each of these resources is identified as such.

Resources such as prime farmlands, geology, communications, climate, and Wild and Scenic Rivers would not be impacted by this project and, thus, will not be evaluated in this EA for the following reasons:

- Prime Farmlands: There are no prime or unique farmlands in the project area.
- Geology: The construction activities proposed for this project do not include practices that would alter the geology of the area. These activities would result in negligible and localized effects to geological features, primarily due to the construction of concrete fence foundations and minimal cut and fill activities over Sonoyta Hill.
- Communications: The project would not affect communications systems in the area.
- Climate: The project would not affect nor be affected by the climate.
- Wild and Scenic Rivers: The proposed project would not affect any designated Wild and Scenic Rivers because no rivers designated as such are located within the project corridor.

3.1 LAND USE

This section was discussed in the 2003 Final EA and is incorporated herein by reference (NPS 2003). OPCNM is used for public use and recreation, species conservation, and as an International Biosphere Reserve. However, the project corridor is located within the Roosevelt Reservation along the U.S.-Mexico border. In March 2006, a Memorandum of Understanding (MOU) was established between DHS, U.S. Department of the Interior, and U.S. Department of Agriculture stating that all parties recognize that CBP operation and construction within the Roosevelt Reservation is the intended land use of the reservation (see Appendix A). Thus, land use within the majority of the project corridor is USBP infrastructure and operations. The

construction footprint over Sonoyta Hill and the use of South Puerto Blanco Road are north of the 60-foot Roosevelt Reservation and would require the issuance of a Special Use Permit by the NPS.

3.2 SOILS

Soils found within the project corridor were previously discussed in the 2003 Final EA and are hereby incorporated by reference (NPS 2003). No prime farmlands are located in the project corridor. There are 7 soils series found within the project corridor, as follows:

- Antho fine sandy loam
- Gilman very fine sandy loam, saline
- Gunsight very gravelly loam, 2-15% slopes
- Harqua very gravelly loam, 0-3% slopes
- Harqua-Gunsight complex
- Lomitas very stony loam, 8-40% slopes
- Torrifluvents (wash beds)

3.3 BIOLOGICAL RESOURCES

3.3.1 Vegetation Communities

Vegetation communities within the project corridor were discussed in the 2003 NPS Final EA and are incorporated herein by reference (NPS 2003). In general, the dominant biotic community of OPCNM is the mixed Sonoran desertscrub. This community is predominantly composed of palo verde (*Cercidium* spp.), organ pipe cactus (*Stenocereus thurberi*), saguaro (*Carnegiea gigantea*), ocotillo (*Fouquieria splendens*), Sonora barrel cactus (*Ferocactus covillei*), California barrel cactus (*Ferocactus cylindraceus*), and brittlebush (*Encelia farinosa*) (INS 2001). The creosote-bursage vegetation community is the second most common vegetation community on OPCNM and is comprised of creosotebush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), and triangle-leaf bursage (*Ambrosia deltoidea*) (NPS 2003). Saltbush (*Atriplex* sp.) is common throughout most of the project corridor, especially east of the Lukeville POE (Baiza 2007).

3.3.2 Wildlife

A detailed discussion of wildlife resources was presented in the 2003 NPS Final EA and is incorporated herein by reference (NPS 2003). In summary, a large diversity of animal species

are known to occur on OPCNM; these species include 55 mammals, 277 bird species, 48 reptiles and amphibians, one fish and two invertebrates. Many of the wildlife species found on OPCNM are obligate desert species; however, the riparian habitat available at Quitobaquito and Aquajita Springs support some aquatic species such as the Sonoran toad (*Bufo alvarius*) and Quitobaquito pupfish (*Cyprinodon macularius*).

3.3.3 Non-Native and Invasive Species

Non-native vegetation was previously discussed in the 2003 Final EA and is incorporated herein by reference (NPS 2003). Although the OPCNM has a minimal amount of non-native or invasive species in relation to the overall habitat area, these species have become a major problem in certain areas. One such area is Quitobaquito Springs. The common non-native species observed on the OPCNM include buffelgrass (*Pennisetum ciliare*), blue panic (*Panicum antidotale*), and ice plants (*Mesembryanthemum* sp.). More specifically, the common non-native plant located in the project corridor is Bermuda grass (*Cynodon dactylon*) (Baiza 2007).

3.4 UNIQUE AND SENSITIVE AREAS

Southwestern Arizona has many unique and sensitive areas. Ongoing efforts by many government agencies, as well as private entities, have set aside areas for preservation. These areas are intended for use by the public in hopes of better understanding the myriad of biological and physical systems exhibited in their natural state. The unique or sensitive areas located within or near the project corridor are discussed below.

Organ Pipe Cactus National Monument

OPCNM was established in 1937 by President Franklin D. Roosevelt to “celebrate the life and landscape of the Sonoran desert” (Desert USA 2004a). In 1976, the United Nations designated OPCNM as an International Biosphere Reserve; it is an almost pristine example of the Sonoran Desert (NPS 2005). In OPCNM, three distinctive desert habitats (i.e., desert wilderness, vast mountain ranges, and plains) converge within 500 square miles, representing diverse plant communities (Desert USA 2004b). OPCNM encompasses approximately 330,000 acres, of which 312,600 acres, or 94 percent, are designated as Wilderness Area (NPS 2004). With 26 species of cacti, OPCNM exhibits an extraordinary collection of plants of the Sonoran desert, including the organ pipe cactus, which is rarely found in the U.S. (NPS 2004). Within the project corridor lies components (i.e., xeroriparian areas and rocky hillsides) that make up the Sonoran Desert

ecosystem for which the OPCNM was set aside to preserve. These components are common throughout the Sonoran Desert, although the concentrations of certain Sonoran Desert species (e.g., organ pipe, senita) are higher within the OPCNM.

Cabeza Prieta National Wildlife Refuge (CPNWR)

CPNWR shares 56 miles of border with Sonora, Mexico, and is home to seven mountain ranges (USFWS 2002, Defenders of Wildlife 2004). CPNWR, established in 1939 to conserve natural wildlife resources (e.g., desert bighorn sheep [*Ovis canadensis mexicana*]), occupies 860,010 acres and is the third largest National Wildlife Refuge in the contiguous 48 states (USFWS 2002, 2005). The Arizona Desert Wilderness Act of 1990 designated over 90 percent (approximately 799,000 acres) of CPNWR as Wilderness Area making it the largest Wilderness Area in the state of Arizona (Arizona Wilderness Coalition 2004). CPNWR supports more than 391 plant species and 300 wildlife species, including the Federally listed Sonoran pronghorn (*Antilocapra americana sonoriensis*) (USFWS 2002). The refuge is characterized by creosote and bursage flats, ocotillo, western honey mesquite (*Prosopis glandulosa*), palo verde, ironwood (*Olneya tesota*), and an abundance of cacti, including cholla (*Opuntia* spp.) and saguaro.

Barry M. Goldwater Range (BMGR)

BMGR, established in 1941 as an aerial gunnery and bombing range, lies to the north and west of the project corridor and CPNWR. BMGR is a 1.7 million acre military tactical aviation training area with 57,000 cubic miles of restricted airspace. It is the second largest range within Department of Defense, and at one time over 2.7 million acres were set aside for the range. Within the boundaries of BMGR, at least 100 important cultural resource sites have been identified, three BLM designated areas of critical environmental concern, and the Flat-tailed Horned Lizard Management Area (BMGR Visitor Information Brochure, n.d.). The “southern westernmost” boundary of BMGR shares approximately 37 miles with the U.S.-Mexico border (U.S. Department of Air Force *et al.* 2006).

The Tohono O’odham Nation

Tohono O’odham Nation (TON) is comprised of four non-contiguous areas (Inter Tribal Council of Arizona 2003). The largest of the four areas within TON is located east of the project corridor. This area stretches 70 miles across the U.S.-Mexico border and occupies 2,773,357 acres. The total population of TON was 23,750 in 1999 (Arizona Department of Commerce 2004). The town

of Sells serves as the Nation's capital and other small, scattered villages are located within TON. Members of the Nation live in both the U.S. and Mexico.

3.5 WILDERNESS

The Wilderness Act of 1964 allowed for the establishment of a National Wilderness Preservation System. The act allows for the establishment of wilderness on Federally owned lands designated by Congress. Areas designated as wilderness are to be administered for the use and enjoyment of the public in such a manner as to leave the lands undisturbed for future use and enjoyment as wilderness, and to provide protection of these areas, and the preservation of their wilderness character. To maintain the wilderness characteristics of designated wilderness areas certain activities are prohibited and include permanent roads (except as necessary to meet minimum requirements for administration of the area, including measures required for emergencies involving human health and safety), temporary roads, motor vehicles, motorized equipment, motorboats, landing of aircraft, any form of mechanical transport, and structures (16 United States Code [U.S.C.] 1121 [note], 1131-1136).

In furtherance of the purpose of the Wilderness Act of 1964, the Arizona Desert Wilderness Act of 1990 was established to provide for the designation of certain public lands as wilderness in the state of Arizona (Public Law 88-577, found in 16 U.S.C. 1131-1136). There are no designated wilderness areas within the project corridor. However, most of OPCNM beginning 150 feet north of South Puerto Blanco Road is designated as Wilderness.

3.6 PROTECTED SPECIES AND CRITICAL HABITATS

3.6.1 Federal

An in-depth discussion of this resource was presented in the 2003 NPS Final EA and is incorporated herein by reference (NPS 2003). Within Pima County, 13 species are listed as Federally endangered, two are Federally threatened, one has been proposed for endangered status and three for candidate species (Table 3-1). Not all of these species occur within the vicinity of the project corridor; however, several have the potential to occur within or near the project corridor. These include the lesser long-nosed bat, Sonoran pronghorn and the Acuna cactus (*Echinomastus erectocentrus* var. *acuñensis*).

Table 3-1. Federally Listed and Proposed Species Potentially Occurring Within Pima County, Arizona

Common/Scientific Name	Federal/State Status	Habitat	Potential to Occur within or near Project Corridor
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	Candidate	Large blocks of riparian woods.	No – No suitable habitat.
Masked bobwhite (<i>Colinus virginianus ridgewayi</i>)	Endangered	Desert grasslands with diversity of dense native grasses, forbs, and brush.	No – Presently only known to occur on Buenos Aires NWR.
Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>)	Endangered	Cottonwood/willow and tamarisk vegetation communities along river and streams.	No – No suitable habitat.
California brown pelican (<i>Pelecanus occidentalis californicus</i>)	Endangered	Coastal lands and islands, also found around lakes and rivers inland.	No – No suitable habitat.
Mexican spotted owl (<i>Strix occidentalis lucida</i>)	Threatened	Nests in canyons and dense forests with multi-layered foliage structure.	No – No suitable habitat.
Sonoran pronghorn (<i>Antilocapra americana sonoriensis</i>)	Endangered	Broad intermountain alluvial valleys with creosote-bursage and palo verde-mixed cacti associations. Current distribution known to occur on the CPNWR.	Yes- Species present on CPNWR and OPCNM.
Ocelot (<i>Leopardus pardalis</i>)	Endangered	Dense, thorny chaparral communities and cedar breaks.	No – No suitable habitat.
Lesser long-nosed bat (<i>Leptonycteris curasoae yerbabuenae</i>)	Endangered	Desertscrub habitat with agave and columnar cacti present as food plants.	Yes – Potential foraging habitat present.
Jaguar (<i>Panthera onca</i>)	Endangered	Found in Sonoran desertscrub up through subalpine conifer forest.	No – Extirpated from the area.
Sonoyta mud turtle (<i>Kinosternon sonoriense longifemorale</i>)	Candidate	Occurs in pond and streams; however, it is restricted to Quitobaquito Springs and nearby stream habitat.	No – Known to occur at Quitobaquito Springs, but outside of project corridor.
Chiricahua leopard frog (<i>Rana chiricahuensis</i>)	Threatened	Streams, rivers, ponds, backwaters, and stock tanks that are mostly free from exotic species at elevations ranging from 1,200 to 4,000 feet.	No – No suitable habitat.
Quitobaquito pupfish (<i>Cyprinodon macularius</i>)	Endangered	Shallow springs, small streams, and marshes. Tolerant of saline and warm water.	No – Critical Habitat designated within the OPCNM at Quitobaquito Springs and Pond, but outside of the project corridor.
Gila chub (<i>Gila intermedia</i>)	Proposed Endangered	Pools, springs, cienegas, and streams within the Gila River system.	No – Known populations occur within the Gila River drainage.
Gila topminnow (<i>Poeciliopsis occidentalis occindentalis</i>)	Endangered	Small streams, springs, and cienegas within the Gila River system.	No – Known populations occur within the Gila River drainage.
Kearney blue star (<i>Amsonia kearneyana</i>)	Endangered	West-facing drainages in the Baboquivari mountains.	No –Project corridor west of Baboquivari Mountains.
Pima pineapple cactus (<i>Coryphantha scheeri</i> var. <i>robustispina</i>)	Endangered	Ridges in semi-desert grassland and alluvial fans in Sonoran desertscrub with elevation ranges from approximately 2,300 to 5,000 feet.	No – Known populations occur in east Pima County at high elevations.

Table 3-1, continued

Common/Scientific Name	Federal/State Status	Habitat	Potential to Occur within or near Project Corridor
Nichol Turk's head cactus (<i>Echinocactus horizonthalonius</i> var. <i>nicholii</i>)	Endangered	Unshaded microsites in Sonoran desertscrub on dissected limestone mountains.	No – Known populations occur in east Pima and south Pinal counties.
Huachuca water umbel (<i>Liaepopsis schaffneriana</i> var. <i>recurva</i>)	Endangered	Cienegas, perennial low gradient streams, wetlands.	No – Known populations found in San Pedro River Basin.
Acuña cactus (<i>Sclerocactus erectocentrus</i> Synonym: <i>Echinomastus erectocentrus</i> var. <i>acunensis</i>)	Candidate	Acuña cacti are found on granite substrates on rounded small hills at elevations ranging from 1,300-2,000 feet.	Yes – Potential to occur, known populations are located on OPCNM approximately 8 miles north of the U.S.-Mexico border.

Source: USFWS 2007.

3.6.1.1 Sonoran Pronghorn

The Sonoran pronghorn was listed as Federally endangered on March 11, 1967 (32 Federal Register [FR] 4001), and is currently recognized as one of five subspecies of pronghorn (USFWS 1998). Sonoran pronghorn range from the plains of central and western Sonora, Mexico north to southwestern Arizona (USFWS 2003). In Arizona, Sonoran pronghorn occur on the CPNWR, the BMGR, and OPCNM, from State Route 85 west to the Cabeza Prieta Mountains and from the vicinity of the Wellton-Mohawk Canal south to the U.S.-Mexico border (Figure 3-1). Although, the Sonoran pronghorn is known to inhabit the OPCNM west of State Route 85, the likelihood of encountering a Sonoran pronghorn within the project corridor is limited because Mexico Highway 2 is near the project corridor, the existing barbed wire fence, and human activity near Sonoyta, Mexico. All of these elements are considered an impediment to pronghorn movement (NPS 2003).

3.6.1.2 Lesser Long-nosed Bat

The lesser long-nosed bat was listed as endangered on September 30, 1988 (53 FR 38456). Lesser long-nosed bats are a nectar, pollen, and fruit eating species that migrates into southern New Mexico and Arizona seasonally from Mexico (Arizona Game and Fish Department [AGFD] 2003). Lesser long-nosed bats migrate starting in early April, apparently following the flowering of columnar cacti and desert agave (*Agave deserti simplex*), returning to Mexico during September (USFWS 1995). A total of 206 saguaro and 295 organ pipe cacti were observed within the survey corridor during the field surveys. It should be noted that over 85 percent of the columnar cacti observed within the project corridor were located within the 0.65 miles across Sonoyta Hill.

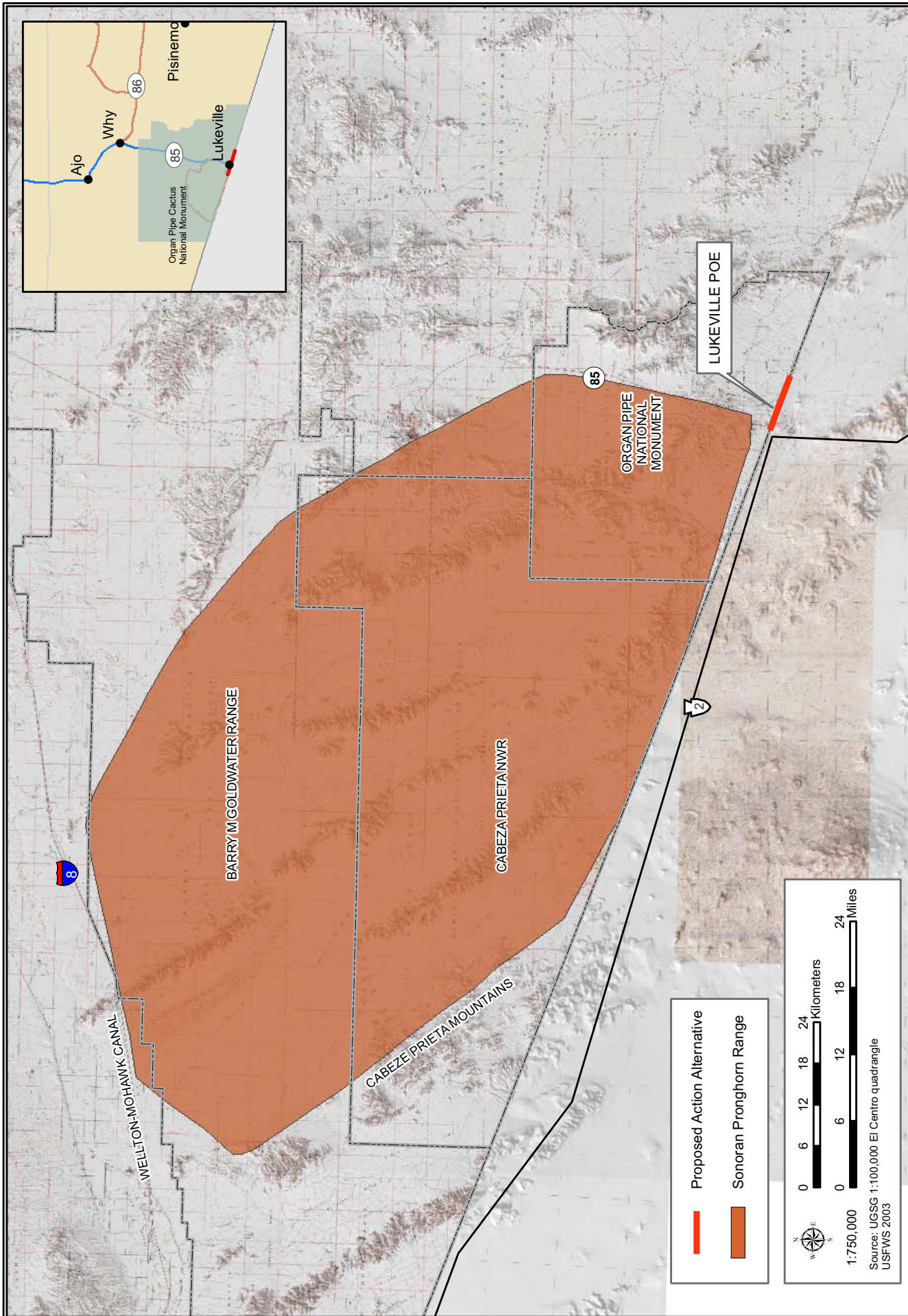


Figure 3-1: Sonoran Pronghorn Range within Project Corridor

The lesser long-nosed bat is found during the summer within desert grasslands and scrublands. The lesser long-nosed bat spends the day in caves and tunnels and forages at night upon plant nectar and pollen. This bat is an important pollinator of agave, and organ pipe and saguaro cacti (AGFD 2003). Roosting occurs in caves, abandoned buildings, and mines, which are usually located at the base of mountains where food sources are present (AGFD 2003). The lesser long-nosed bat is a seasonal resident of the OPCNM. Roosting sites are located in the OPCNM, but no known roosting sites occur within the project corridor (NPS 2003). The closest location of a known maternity colony to the project corridor would be approximately 15 miles (NPS 2003).

3.6.1.3 *Acuña Cactus*

The candidate status of *Acuña cactus* was last reviewed on May 11, 2005 (70 FR 24870). Seven populations of *Acuña cactus* are currently known to exist (Baiza 2007). The species is restricted to well drained knolls and gravel ridges between major washes on substrates, including granite hills and flats and bright red to white andesite, occurring from 1,300 to 2,000 feet in elevation (AGFD 2004). The species requires insect vectors for pollination, with polylectic bee species being the primary agent (AGFD 2004). Dispersal occurs primarily through gravity, and secondarily by wind, rain, and small insects.

As a candidate species, the *Acuña cactus* is not Federally protected, but is protected by the Arizona's Native Plant Law. Consideration is given to candidate species because of the potential for their listing during project activities, which could require USFWS Section 7 consultation. Although the *Acuña cactus* is known to inhabit the OPCNM, the known population is outside of the project corridor (approximately 8 miles north of U.S.-Mexico border) and no specimens were found within the project corridor during recent field surveys.

3.6.2 State

Suitable habitat for state sensitive species exists within the project corridor. All of the faunal species listed in Table 3-1 have a state-sensitive designation of Wildlife of Special Concern (WSC). State protected species (i.e., WSC) potentially found in the project corridor that are not Federally protected include the Great Plains narrow mouthed toad (*Gastrophryne olivacea*), cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*), Sonoran desert tortoise (*Gopherus agassizii*), California leaf-nosed bat (*Macrotus californicus*), Mexican rosy boa (*Charina trivirgata trivirgata*), and tropical kingbird (*Tyrannus melancholicus*). The Sonoran

desert tortoise and the Mexican rosy boa have the potential to exist near Sonoyta Hill within the project corridor. A complete list of state and Federal protected species for Pima County is included in Appendix B.

3.6.3 Critical Habitat

The Quitobaquito pupfish (*Cyprinodon macularius*) is the only species near the project corridor which has designated critical habitat. The critical habitat includes the Quitobaquito Springs and pond, and a 100-foot riparian buffer (USFWS 1986). Although the Quitobaquito pupfish critical habitat is located within the OPCNM, it is approximately 10.5 miles west of the project corridor.

3.7 CULTURAL RESOURCES

The NHPA of 1966 establishes the Federal government's policy to provide leadership in the preservation of historic properties and to administer Federally owned or controlled historic properties in a spirit of stewardship. Section 106 of the NHPA of 1966, as amended, requires Federal agencies to identify and assess the effects of their undertakings on cultural properties included in or eligible for inclusion in the National Register of Historic Places (NRHP), and to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on such undertakings. Federal agencies must consult with the appropriate state and local officials, Indian tribes, applicants for Federal assistance, and members of the public and consider their views and concerns about historic preservation issues. The ACHP is authorized to promulgate such rules and regulations as it deems necessary to govern the implementation of Section 106 in its entirety. Those regulations are contained in the Code of Federal Regulations as 36 CFR Part 800, "Protection of Historic Properties".

Several other important pieces of legislation include the Archeological Resources Protection Act (ARPA), the Native American Graves Protection and Repatriation Act (NAGPRA), along with EO 13007 and EO 13175. ARPA strengthened the permitting procedures required for conducting archeological fieldwork on Federal lands, originally mandated by the Antiquities Act. It also established more rigorous fines and penalties for unauthorized excavation on Federal land. NAGPRA mandates Federal agencies to summarize, inventory, and repatriate cultural items in the possession of or control of the Federal agency to lineal descendants or to culturally affiliated Federally recognized Indian tribes. NAGPRA also requires that certain procedures be followed when there is an intentional excavation of or an inadvertent discovery of human remains. EO

13007 was issued on May 24, 1996 in order to facilitate the implementation of the American Indian Religious Freedom Act of 1978. It specifically charges Federal agencies to: (1) accommodate, to the extent practical, American Indian access to and use of sacred sites by religious practitioners; (2) avoid adversely affecting the physical integrity of sacred sites; and (3) to maintain the confidentiality of these sites. E.O. 13175 outlines the official U.S. government policy on consultation and coordination with American tribal governments. The order emphasizes formal recognition of the American Indian Tribes' status as...“domestic independent nations” that have entered into treaties with the U.S. guaranteeing their right to self-government. It stipulates that this consultation would be done on a “government to government basis.”

3.7.1 Cultural History

The archaeology of southern Arizona is relatively complex considering the various geographic and related cultural features. The OPCNM lies within a cultural area known as the Western Papaguería, which includes the region bounded by the Colorado River to the west, the Gila River to the north, the TON to the east, and Puerto Peñasco, Sonora, Mexico to the south (USFWS 2001). The cultural history of OPCNM can be divided into five periods:

Period	Dates
Preceramic	10,000 B.C. to A.D. 200
Ceramic	A.D. 200 to 1500
Early Historic	A.D. 1540 to 1848
Late Historic	A.D. 1848-1945
World War II and Cold War	A.D. 1945-1989

Source: USFWS 2001

3.7.2 Previous Investigation

A cultural resources survey was conducted in 2002 for the proposed construction of vehicle barriers along the U.S.-Mexico Border with the OPCNM. The survey corridor consisted of a 100 foot survey corridor along the international border within the OPCNM. The survey identified seven cultural resources that would be potentially impacted by the proposed vehicle barriers (NPS 2003).

3.7.3 Current Investigation

A site records check and cultural resources survey was conducted for the construction footprint of the Proposed Action Alternative. Three previously recorded historic objects, International Boundary Monuments 166, 167, and 168 were relocated during the current surveys. The International Boundary Monuments are listed on the NRHP and are considered significant

cultural resources. In addition, one previously recorded archaeological site, the Gachado Well and Line Camp (AZ C:1:17[ASM]) was also relocated and mapped during the current survey. This archaeological site is also listed on the NRHP and is considered a significant cultural resource. It should be noted that the Gachado Well and Line Camp, however, are not located within the 60-foot wide project corridor (Tuomey 2007).

3.8 AIR QUALITY

A detailed discussion of air quality conditions was presented in the 2003 NPS Final EA and is incorporated herein by reference (NPS 2003). Pima County is classified as being in attainment for all criteria pollutants under the National Ambient Air Quality Standards (NAAQS) (Pima County Department of Environmental Quality [PCDEQ] 2007).

According to 40 CFR 51.853(b), Federal actions require a Conformity Determination for each pollutant where the total of direct and indirect emissions in a non-attainment or maintenance area caused by a Federal action would equal or exceed any of the rates in paragraphs 40 CFR 51.853(b)(1) or (2). If emissions from a Federal action do not exceed *de minimis* thresholds, and if the Federal action is not considered a regionally significant action, it is exempt from further conformity analysis. Therefore, because Pima County is in attainment for all criteria pollutants and because any alternative chosen would not exceed *de minimis* thresholds, a conformity analysis is not warranted (see Section 4.8.2).

3.9 WATER RESOURCES

A detailed discussion of this resource was presented in the 2003 NPS Final EA and is incorporated herein by reference (NPS 2003). Surface waters on OPCNM are limited as water availability varies seasonally with the majority of rainfall occurring in late summer. Section 404 of the CWA of 1977 (PL 95-217) authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill material into waters of the U.S., including wetlands. Any area that meets these criteria is commonly classified as “Waters of the U.S.” Waters of the U.S. are further defined as all other waters such as intrastate lakes, rivers, streams, mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, natural ponds, or impoundments of waters, tributaries of waters, and territorial seas. Activities that result in the dredging and/or filling of jurisdictional Waters of the U.S., including wetlands, are

regulated under Section 404 of the CWA. There are 16 intermittent streams which cross the project corridor; however, there are no perennial streams on OPCNM (NPS 2003). Wetlands are sparse on OPCNM and are limited to those areas with perennial water flow such as Quitobaquito Springs and Aquajito Springs. Both of these wetland areas are outside of the project corridor and would not be impacted (NPS 2003).

The project corridor is within the Western Mexican Drainage Basin (WMDB), which covers approximately 730 square miles in southern Arizona (INS 2001). The WMDB is similar in structure to the surrounding Basin and Range Province basins that are characterized by broad alluvium-filled valleys dissected by elongated mountain ranges. The Arizona Department of Water Resources (ADWR) estimated that in 1988 approximately 4.1 million acre-feet of groundwater was stored at a depth of 1,200 feet below the land surface (ADWR 2005, INS 2001). The annual recharge rate for the WMDB is 2,400 acre-feet per year (Leake 2005). In 1985, the ADWR estimated approximately 220 acre-feet of water was withdrawn from the WMDB (ADWR 2005). Since the recharge rate far exceeds the withdrawal rate, the WMDB currently provides ample groundwater supply for the current users.

The Lower Gila River Basin is situated north of the WMDB and OPCNM, within this basin, groundwater occurs in both floodplain and basin fill deposits. Streambed or floodplain deposits (consisting of sand, gravel, cobbles, and boulders) range from approximately 10 ft thick in the smaller drainages to as much as 110 ft thick in the Gila River floodplain (Babcock *et al.* 1947). The basin fill deposits may be divided into three separate units; the upper sandy unit, a middle fine-grained unit, and a lower coarse-grained unit (ADWR 2004). These units vary in thickness and may not be present at all locations. Groundwater recharge is from infiltration of rainfall runoff and underflow from groundwater basins that are hydraulically up gradient (Weist 1965). The groundwater for the construction of the proposed project would come from within this basin and more than likely from the town of Why or Ajo, Arizona. Because much of the land surrounding the towns of Ajo and Why is undeveloped public land and the need for water in the region is limited to the populated areas, the municipal wells often maintain high water levels (Tibbits 2004).

Pursuant to the National Flood Insurance Act of 1968, as amended (42 USC 4001 et seq.), and the Flood Disaster Protection Act of 1973 (P.L. 93-234, 87 Stat. 975), EO 11988, floodplain management requires that each Federal agency take actions to reduce the risk of flood loss,

minimize the impact of floods on human safety, health and welfare, and preserve the beneficial values which floodplains serve. EO 11988 requires that agencies evaluate the potential effects of actions within a floodplain and avoid floodplains unless the agency determines that there is no practicable alternative. Where the only practicable alternative is to site in a floodplain, a planning process is followed to ensure compliance with EO 11988. In summary, this process includes the following steps:

- determine whether or not the action is in the regulatory floodplain;
- conduct early public notice;
- identify and evaluate practicable alternatives, if any;
- identify the impact of the action;
- minimize the impact;
- reevaluate alternatives;
- present the findings and a public explanation; and
- implement the action.

This process is further outlined on the FEMA's Environmental Planning and Historic Preservation Program Web site (FEMA 2006). As a planning tool, the NEPA process incorporates floodplain management through analysis and public coordination, ensuring that the floodplain management planning process is adhered to. In addition, floodplains are managed at the local municipal level through the assistance and oversight of FEMA. According to FEMA Map Panel number 0007643050B, approximately 550 feet of the project corridor is located within the 100-year floodplain. This area is located immediately west of the Lukeville POE.

3.10 SOCIOECONOMICS

The socioeconomic environment for the Region of Influence (ROI), Pima County, was described in the 2003 Final EA and is herein incorporated by reference (NPS 2003). The population of Pima County in 2006 was estimated at 902,720 (U.S. Census Bureau 2005). The 2005 racial mix of Pima County was predominantly Caucasian (71.1 percent), followed by American Indians and Alaskan Natives (3.2 percent), African Americans (2.9 percent) and Asian persons (2.4 percent), with the remaining 20.4 percent of the population reporting other races (U.S. Census Bureau 2005). Persons of any race can claim Hispanic or Latino origin; 32 percent of the 2005 population of Pima County claim to be of Hispanic or Latino origin (U.S. Census Bureau 2005). The total number of jobs in Pima County in 2005 was 486,165, an increase of 26 percent over the number of jobs in 1995 (384,604; Bureau of Economic Analysis [BEA] 2005). The 2005 annual average unemployment rate for Pima County was 4.6 percent (Arizona Department of

Commerce 2005). This is lower than the 4.7 percent average annual unemployment rate for the state of Arizona (Arizona Department of Commerce 2005).

In 2005, Pima County had a per capita personal income (PCPI) of \$28,869. This PCPI ranked 2nd in the state of Arizona, and was 96 percent of the state average of \$30,019, and 84 percent of the National average of \$34,471. Total personal income (TPI) for Pima County in 2005 was \$26.7 billion.

3.10.1 Environmental Justice

E.O. 12898 (Federal Actions to Address Environmental Justice in Minority and Low-Income Populations) was signed in February 1994. This order was intended to direct Federal agencies "...to make achieving environmental justice part of its mission by identifying and addressing... disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the [U.S.]..." To comply with the E.O., minority and poverty status in the vicinity of the project was examined to determine if any minority and/or low-income communities would potentially be disproportionately affected by implementation of the Proposed Action Alternative. Both low-income and minority populations are prevalent within the ROI. No residential areas exist in or near the project corridor in the U.S. However, developed areas (i.e., residential) are located adjacent to the project corridor in Sonoyta, Mexico.

3.10.2 Protection of Children

E.O. 13045 requires each Federal agency "to identify and assess environmental health risks and safety risks that may disproportionately affect children", and "ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks". This E.O. was prompted by the recognition that children, still undergoing physiological growth and development, are more sensitive to adverse environmental health and safety risks than adults. The potential for impacts to the health and safety of children is greater where projects are located near residential areas. No residential areas exist in or near the project corridor in the U.S. However, developed areas (i.e., residential) are located adjacent to the project corridor in Sonoyta, Mexico.

3.11 NOISE

Noise is generally described as unwanted sound, which is identified by either objective effects (hearing loss, damage to structures, *etc.*) or subjective judgments (community annoyance). Sound is represented on a logarithmic scale with a unit called the decibel (dB). Sound on the decibel scale is referred to as a sound level. The threshold of human hearing is approximately 0 dB, and the threshold of discomfort or pain is around 120 dB.

Sound levels are computed over a 24-hour period and adjusted for nighttime annoyances to produce the day-night average sound level (DNL). DNL is the community noise measurement recommended by the U.S. Environmental Protection Agency (EPA) and has been adopted by most Federal agencies (EPA 1974). A-weighted decibels (dBA) are used to express the relative loudness of sounds in air as perceived by the human ear (Generac Power Systems, Inc. 2004). A-weighting is necessary to compare the effects of sounds on the human body, because the human ear is less sensitive at low frequencies than at high frequencies. A DNL of 65 dBA is most commonly used for noise planning purposes, and represents a compromise between community impact and the need for activities like construction. Areas exposed to DNL above 65 dBA are generally not considered suitable for residential use. A DNL of 55 dBA was identified by EPA as a level below which there are effectively no adverse impacts (EPA 1974).

Noise levels surrounding the project corridor are variable depending on the time of day and climatic conditions. The construction activities potentially causing elevated noise levels within the project corridor would include diesel and gasoline powered generators, trucks, and construction equipment.

Heavy duty trucks generate a noise level of approximately 90 dBA. Attenuation to 55 dBA occurs at a distance of approximately 2,600 feet depending on climatic conditions, topography, vegetation, and man-made barriers (Generac Power Systems, Inc. 2004). Noise levels for other types of construction equipment range from the loudest, tractors and backhoes (70 to 95 dBA) to pumps and generators (65 to 85 dBA) (Bugliarello *et al.* 1976). The Lukeville POE is a busy port with continuous traffic during its hours of operation. Therefore, noise generated near the POE is expected to be elevated due to the operation of the POE and associated traffic. The OPCNM and its associated Wilderness Area as well as the residences in Mexico are considered sensitive noise receptors and are located near the project corridor.

3.12 AESTHETICS

Aesthetic resources consist of the natural and man-made landscape features that appear indigenous to the area and give a particular environment its visual characteristics. The major visual characteristic of southern Arizona lies in its vast areas of naturally occurring landscape, tranquil dark skies, and scenic mountain ranges. The project corridor is located near Sonoyta, Mexico and the town of Lukeville, Arizona (i.e., Lukeville POE). OPCNM and its associated Wilderness Areas are located adjacent to the project corridor and are visited for recreational purposes, natural settings, and aesthetic values. However, the project corridor currently has a limited aesthetic value due to the disturbed nature of the project footprint, existing PVBs and chain link fence, illegal trails, trash (Photograph 3-1), Sonoyta, Mexico (Photograph 3-2), and Lukeville POE (Photograph 3-3).



Photograph 3-1. Trails and trash left by IAs near Lukeville, Arizona POE.



Photograph 3-2. View of Sonoyta, Mexico residential areas from U.S. Border near Lukeville, Arizona.



Photograph 3-3. Lukeville, Arizona-Sonoyta, Mexico POE.

3.13 WASTE

3.13.1 Hazardous Waste

EPA's mission is to protect humans and the environment and work to develop and enforce regulations that implement environmental laws enacted by Congress (from such legislation as the Resource Conservation and Recovery Act of 1976 and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980). The EPA maintains a list of hazardous waste sites, particularly waste storage/treatment facilities or former industrial manufacturing sites in the U.S. The chemical contaminants released into the environment (air, soil or groundwater) from hazardous waste sites may include heavy metals, organic compounds, solvents and other chemicals. The potential adverse human health impact of hazardous waste sites is a considerable source of concern to the general public, as well as government agencies and health professionals.

EPA databases, Environmental and Compliance History Online and Envirofacts Data Warehouse, were reviewed for the locations of hazardous waste sites within or near the proposed project corridor (EPA 2007a, 2007b). According to both of these databases, no hazardous waste sites are located near or within the project corridor.

3.13.2 Unregulated Solid Waste

Unregulated solid waste within OPCNM has become a severe problem in recent years due to illegal vehicle and foot traffic. According to the Ninth Report of the Good Neighbor Environmental Board (GNEB) to the President and Congress of the U.S., the average IA disposes of approximately 8 pounds of waste a day. This waste consists of backpacks, clothing, blankets, water bottles, plastic sheeting, food, and other debris (GNEB 2006). Within the project area these forms of unregulated solid waste are the most commonly observed.

SECTION 4.0
ENVIRONMENTAL CONSEQUENCES

4.0 ENVIRONMENTAL CONSEQUENCES

In accordance with CEQ regulations (40 CFR § 1502.16), this section of the EA addresses potential impacts to the affected environment within the project corridor for the two alternatives outlined in Section 2 of this document. An impact (consequence or effect) is defined as a modification to the human or natural environment that would result from the implementation of an action. The impacts can be either beneficial or adverse, and can be either directly related to the action or indirectly caused by the action. The effects can be temporary, short-term, long-term or permanent. For purposes of this EA, temporary effects are defined as those that would occur during construction or immediately after construction; short-term impacts would last less than 3 years after completion of the action. Long-term impacts are defined as those that would last 3 to 10 years. Permanent impacts would indicate an irretrievable loss or alteration of resources.

Impacts can vary in degree or magnitude from a slightly noticeable change to a total change in the environment. The significance of the impacts presented in this EA is based upon existing regulatory standards, scientific and environmental knowledge, and best professional opinions. Significant impacts are those effects that would result in substantial changes to the environment (as defined by 40 CFR 1500-08) and should receive the greatest attention in the decision making process.

This EA describes the potential permanent impacts assuming that the entire 60-foot Roosevelt Reservation and 150-foot project footprint over Sonoyta Hill would be disturbed. It is also assumed that within the construction footprint any impacts would be permanent. Therefore, the permanent impacts described for the Proposed Action Alternative would total approximately 45 acres (12 acres within 150-foot wide footprint and 33 acres the within 60-foot wide footprint).

Other assumptions were also made in this EA regarding the primary pedestrian fence. It was assumed that in order to build the road and fence would require a range of 5.2 to 11.4 acre-feet (1.7 million gallons to 3.7 million gallons) of water for the concrete footer and dust suppression. One acre-foot is equivalent to 325,000 gallons of water. The primary pedestrian fence would require, as needed, maintenance activities to be performed by USBP that would be mostly limited to minor patchwork repairs and standard maintenance operations. These maintenance activities would not result in significant impacts to the natural or human environment.

The following discussions describe and, where possible, quantify the potential effects of each alternative on the resources within or near the project corridor. All impacts described below are considered to be adverse unless stated otherwise.

4.1 LAND USE

4.1.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no infrastructure proposed as part of this project would be constructed. Although land use would not change, IA pedestrian traffic on OPCNM would continue and potentially increase with the implementation of other border enforcement activities along the southwest border.

4.1.2 Alternative 2: Proposed Action Alternative

The majority of the project corridor is within the Roosevelt Reservation. However, some of the project corridor (i.e., 7 acres) over Sonoyta Hill is not within the Roosevelt Reservation and would be used for USBP infrastructure maintenance and enforcement operations. A Special Use Permit articulating USBP's use of the 7 acres would be obtained from the NPS prior to construction, since the area would remain under NPS's management. The use of 7 acres represents less than 0.002 percent of the total OPCNM.

Indirect impacts to land use could occur outside of the project corridor as IAs attempt to circumvent the proposed infrastructure. These impacts cannot be quantified at this time because IA patterns and migration routes are completely out of USBP's control. However, the primary pedestrian fence would act as a force multiplier and allow for USBP to deploy agents to areas without pedestrian barriers. Therefore, potential adverse indirect impacts to land use would be minimal. Indirect beneficial impacts to land use on OPCNM are expected as a result of decreased illegal traffic within the project corridor. By reducing illegal traffic within and adjacent to the project corridor, damage to OPCNM north of the project corridor would also be reduced or possibly eliminated. OPCNM has identified that implementation of the Proposed Action Alternative might allow OPCNM to re-open some areas east of Lukeville (i.e., Gachado Line Camp) to the public that have been closed in the past due to IA activity (Kralovec 2007).

4.2 SOILS

4.2.1 Alternative 1: No Action Alternative

No ground disturbing activities would be conducted as a result of this alternative. Therefore, the No Action Alternative would have no direct impacts, either beneficial or adverse, on the soils within the project corridor. However, soils are currently indirectly impacted by illegal pedestrian traffic on OPCNM. In the absence of the primary pedestrian fence, IA foot traffic would continue and potentially increase, disturbing additional soils and causing soil erosion north of the project corridor.

4.2.2 Alternative 2: Proposed Action Alternative

The Proposed Action Alternative would permanently impact approximately 45 acres of soils within the project corridor through the construction of the primary pedestrian fence. About 17 acres of the total footprint are highly disturbed from the construction of the existing PVBs. Although these impacts would be permanent, they would not be considered significant because the impacts would primarily affect previously disturbed soils, and because of the vast amounts of similar soil types adjacent to the project corridor. No impacts to prime farmlands would occur.

As a result of this alternative, the volume of illegal pedestrian traffic would be expected to decrease and, consequently, would result in long-term indirect beneficial impacts to soils north of the project corridor. Indirect adverse effects to soils could occur in adjacent areas where the border infrastructure proposed under this alternative is not employed, as IAs try to circumvent the improved areas to avoid detection.

A Stormwater Pollution Prevention Plan (SWPPP) and Notice of Intent (NOI) under the CWA's National Pollutant Discharge Elimination System (NPDES) would be required for all construction sites greater than 1 acre (33 U.S.C. §1342). These and other mitigation measures proposed to reduce or minimize erosion and ensure the hydrology of the project corridor is not permanently altered are discussed in Section 6.0.

4.3 BIOLOGICAL RESOURCES

4.3.1 Vegetation Communities

4.3.1.1 *Alternative 1: No Action Alternative*

There would be no direct impacts to the project corridor's vegetation communities as no construction would occur. Adverse, long term impacts to vegetation and vegetation communities would continue to occur from the continued damage caused by IA foot traffic on OPCNM. The No Action Alternative would not increase deterrence of illegal entry nor expand the window of opportunity for USBP agents to detect and respond to illegal entry attempts. Implementation of the No Action Alternative would result in continued indirect adverse impacts to vegetation communities from illegal traffic.

4.3.1.2 *Alternative 2: Proposed Action Alternative*

Implementation of the Proposed Action Alternative would result in the permanent loss of approximately 28 acres within the project corridor. The remaining 17 acres within the project corridor has no vegetation due to past construction and other human disturbances. The vegetation that does occur consists of locally and regionally common species; therefore, negligible effects would occur to the region's vegetation. Erosion within the disturbed areas would occur but would be minimized by implementing pre- and post-construction BMPs identified in the SWPPP. The proposed primary pedestrian fence and road would be designed and constructed in a manner that would not alter drainage patterns; thus, increased downstream erosion or sedimentation, which could affect vegetation communities, would not be expected.

Beneficial indirect impacts, such as a reduction of native vegetation being damaged from illegal activities and consequent USBP enforcement activities, would occur as IAs and smuggling activities are reduced or potentially eliminated within the area. Conversely, areas outside of the project corridor could be indirectly impacted as IAs attempt to avoid detection and circumvent the proposed infrastructure. These impacts cannot be quantified at this time because IA patterns and migration routes are completely out of USBP's control. However, the primary pedestrian fence would act as a force multiplier and allow USBP to deploy agents to areas without pedestrian barriers, therefore, minimizing potential adverse indirect impacts.

4.3.2 Wildlife

4.3.2.1 Alternative 1: No Action Alternative

No impacts to fish and wildlife resources would occur as a result of the implementation of the No Action Alternative because no construction activities would occur. However, indirect adverse impacts to wildlife from continued illegal pedestrian traffic degrading habitat would occur and could potentially increase.

4.3.2.2 Alternative 2: Proposed Action Alternative

Although approximately 45 acres would be permanently impacted from the Proposed Action Alternative, these impacts would be considered negligible, since much of the project corridor (17 acres) has been previously disturbed, and the remainder has limited and somewhat disturbed vegetation. The Proposed Action Alternative would not have direct impacts to fish or other aquatic species, because the proposed construction activities would not take place in naturally flowing or standing water. Mitigation measures would be implemented for construction in or near washes as stated in Section 6.0 and follow the measures described in the project's SWPPP to reduce potential impacts to riparian areas from erosion or sedimentation.

Mobile animals (e.g., birds) would escape to areas of similar habitat, while other slow or sedentary species of reptiles, amphibians, and small mammals could potentially be lost. As a result, direct minor adverse impacts to wildlife species in the vicinity of the project corridor are expected. Although some animals may be lost, this alternative would not result in any substantial reduction of the breeding opportunities for birds and other animals on a regional scale due to the tens of thousands of acres of suitable, similar habitat adjacent to the project corridor. Additionally, mitigation measures would be implemented to ensure that no "take" of migratory birds occurs if this alternative is implemented, in accordance with the Migratory Bird Treaty Act (MBTA).

Although the primary pedestrian fence could preclude transboundary migration patterns of animals, especially larger mammals (e.g., mule deer [*Odocoileus hemionus*]), and thus fragmenting habitat within the project corridor, these impacts would be considered minimal. Habitat fragmentation typically affects species with small population sizes or that are dependent upon migration to obtain spatially or temporally limited resources (Gilpin and Hanski, 1991). The primary pedestrian fence would be designed and constructed in the washes to allow proper conveyance of flood flows. It is expected that these designs would also allow the transboundary migration of reptiles, amphibians, and small mammals, which would reduce the fragmentation

effects. Wildlife would also still be able to migrate across the U.S.-Mexico border either to the east or west of the project footprint terminus. In addition, the species located within the project corridor are regionally common in both the U.S. and Mexico. Therefore, no significant adverse effects are anticipated to the region's wildlife population.

Indirect adverse impacts to wildlife habitat adjacent to the project corridor could occur as illegal pedestrian traffic attempts to circumvent the proposed infrastructure. It is possible for IAs to attempt illegal entry outside of the project corridor. However, the primary pedestrian fence would act as a force multiplier and allow USBP to deploy agents to areas without pedestrian barriers, minimizing potential adverse indirect impacts. Beneficial indirect impacts would be expected from the protection afforded to areas to the north of the project corridor due to the implementation of the Proposed Action Alternative.

4.3.3 Non-native and invasive species

4.3.3.1 Alternative 1: No Action Alternative

No impacts to non-native and invasive plants are expected as a result of the No Action Alternative because no construction activities would occur. However, indirect adverse impacts, such as the spread of non-native or invasive plants, could occur as a result of continued illegal pedestrian traffic.

4.3.3.2 Alternative 2: Proposed Action Alternative

Disturbance of 45 acres (total) of soils during the construction activities would result in favorable conditions for the establishment of non-native and invasive species. Disturbances would occur in vegetated areas that would create dispersal corridors for invasive species. However, because the project corridor would be patrolled and maintained by NPS and USBP (limiting potential for growth of new sprouts) and would be monitored for the spread of invasive species, potential impacts would not be considered significant. With the exception of Sonoyta Hill, some of the project corridor has been previously disturbed from the construction of the existing PVBs. Regardless, the establishment of invasive species within disturbed areas would be minimized through mitigation measures mentioned above and as described later in Section 6.0. The Proposed Action Alternative would also serve as a barrier to the spread of non-native and invasive plants, as many invasive plant propagules are transported into the U.S. on clothing of IAs (INS 2002).

4.4 UNIQUE AND SENSITIVE AREAS

4.4.1 Alternative 1: No Action Alternative

No impacts to unique and sensitive areas would result from the implementation of the No Action Alternative, as no construction would occur. However, indirect adverse impacts to unique and sensitive areas due to continued illegal pedestrian traffic would occur and could potentially increase.

4.4.2 Alternative 2: Proposed Action Alternative

Noise increases due to construction activities would be temporary; therefore, no long-term significant impacts to unique and sensitive areas, as a result of increases in ambient noise levels, would occur. The construction crews and equipment would access the project corridor along the border road primarily within the Roosevelt Reservation, limiting visual and noise impacts to the OPCNM. However, the use of South Puerto Blanco Road would be required to access the project corridor on the western face of Sonoyta Hill. A Special Use Permit from NPS would be needed for construction to access areas outside of the Roosevelt Reservation. This permit would be obtained prior to construction activities. Temporary impacts to aesthetics would be expected for the duration of the construction activities; however, these would be eliminated upon completion of this alternative. Permanent impacts to aesthetics would also be expected due to the additional infrastructure. However, these impacts would occur primarily within previously disturbed areas and mitigation measures (i.e., using non-reflective materials) would be implemented to ensure any impacts would be less than significant.

Furthermore, approximately 7 acres of unique and sensitive area (*i.e.*, OPCNM) would be directly impacted. This area is located on Sonoyta Hill along the western terminus of the project corridor. Although OPCNM would be adversely impacted, these impacts would not be considered significant as the indirect beneficial impacts from long-term protection of the remaining portions of OPCNM would be expected to outweigh the direct impacts.

The proposed infrastructure would have indirect beneficial impacts to unique and sensitive areas by reducing the frequency of illegal pedestrian traffic on OPCNM and subsequent creation of trails and disposal of trash. Furthermore, long-term protection of OPCNM resources such as natural vegetation, landscapes, and cultural sites would be expected under the Proposed Action Alternative. Indirect adverse impacts such as a decline in visitor attendance may occur during

construction activities; however, once the construction activities are complete, OPCNM would be afforded better protection and a safer environment. Thus, in the long-term, visitor experiences would be potentially enhanced (see Section 4.1.2). Other indirect adverse impacts to unique and sensitive areas outside of the project corridor could occur if IAs chooses to circumvent the proposed primary pedestrian fence. However, the primary pedestrian fence would act as a force multiplier and allow USBP to deploy agents to areas without pedestrian barriers; therefore, potential adverse indirect impacts would be minimized.

4.5 WILDERNESS

4.5.1 Alternative 1: No Action Alternative

No impacts to Wilderness Areas would occur from the implementation of the No Action Alternative, as no construction would occur. However, indirect adverse impacts to Wilderness Areas north and west of the project corridor could occur, since illegal pedestrian traffic would continue to occur and could potentially increase.

4.5.2 Alternative 2: Proposed Action Alternative

Wilderness Areas as defined in the Wilderness Act of 1964 are lands in an area where the earth and its community of life are untrammelled by man. The Proposed Action Alternative would not directly impact any areas designated as Wilderness Area. However, noise associated with construction equipment and construction activities would adversely affect Wilderness Area characteristics. These impacts would be temporary because noise levels near the OPCNM Wilderness would return to preconstruction levels upon completion of construction activities. Additionally, aesthetic qualities inherent to Wilderness Areas would be adversely impacted by the sight of the primary pedestrian fence within the viewshed. Two schematic representations of how the fence would appear from South Puerto Blanco road (near the OPCNM Wilderness) are presented in Exhibit 4-1 and 4-2. Additionally, as shown previously in Photographs 3-1 through 3-3, the area along the border contains a lot of development, litter, trails, and other types of disturbances. The primary pedestrian fence would reduce the amount of IA-associated litter and trails and screen the surrounding development from park visitors. Therefore, the adverse impacts of the primary pedestrian fence, when compared to the No Action Alternative and the long-term benefits of the primary pedestrian fence, would be considered insignificant.

Exhibit 4-1. Schematic Representation of View from South Puerto Blanco Road Facing Southwest



Exhibit 4-2. Schematic Representation of View from South Puerto Blanco Road Facing Southeast



There is a potential for areas adjacent to the project corridor to experience an increase in illegal foot traffic with the implementation of this alternative. All or none of the illegal foot traffic could shift to either east or west of the project corridor and potentially into designated Wilderness Areas. However, the Proposed Action Alternative would allow USBP to deploy agents, as needed, to other areas that are unprotected, which would reduce IA traffic impacts to Wilderness Areas near the project corridor. Therefore, no significant direct or indirect impacts to Wilderness Areas would be expected upon implementation of the Proposed Action Alternative.

4.6 PROTECTED SPECIES AND CRITICAL HABITAT

4.6.1 Alternative 1: No Action Alternative

The No Action Alternative would not directly impact any protected species as no construction activities would occur. However, indirect adverse impacts to protected species, such as habitat degradation as a result of continued illegal pedestrian traffic, would occur and could potentially increase.

4.6.2 Alternative 2: Proposed Action Alternative

The potential impacts to the Sonoran pronghorn associated with the Proposed Action Alternative would be similar to those discussed in the 2003 NPS Final EA and are incorporated herein by reference (NPS 2003). As seen on Figure 3-1, the Sonoran pronghorn range is not within the project corridor. Additionally, the project corridor is located along the U.S.-Mexico border (which is rarely visited by the pronghorn), within 2.1 miles of the Lukeville POE (pronghorn are very reclusive and do not like human interaction), and contains previously disturbed habitat. Although no direct impacts would occur to the pronghorn, there is the potential for indirect adverse impacts if IA traffic shifts west of the proposed infrastructure. Therefore, through consultation with USFWS, CBP and USBP has determined that this alternative would adversely effect the Sonoran pronghorn. CBP and USBP would implement conservation measures, identified during the Section 7 consultation process, to offset these impacts. Some conservation measures that have been identified and would be implemented include:

1. During construction USBP would conduct daily observations of project region as close to dawn as possible to determine if Sonoran pronghorn are within 0.62 mile of project activities. No project work will begin until pronghorn move on their own volition to a distance greater than 0.62 mile from the activities. This measure would be relevant for those activities only on the western slope of Sonoyta Hill, where there is a greater potential for pronghorn to occur.

2. The number of vehicles traveling to and from the project site for construction purposes and the number of trips per day would be minimized to reduce the likelihood of disturbing pronghorn in the area or injuring an animal on the road. The use of vehicle convoys, multi-passenger vehicles, and other methods are appropriate to project construction.
3. CBP will provide assistance to annually fill one supplemental water for Sonoran pronghorn on OPCNM per the CBP programmatic mitigation agreement with USFWS.

The project corridor is not located near any known bat roosting sites, and therefore, would not affect any roost sites, including maternity roosts. Almost all of the Sonoran Desert is considered foraging habitat for the lesser long-nosed bat and OPCNM consist of over 330,300 acres of Sonoran Desert. The permanent disturbance of 28 acres of foraging habitat would amount to the loss of less than 0.0006 percent of foraging habitat within the OPCNM. However, USBP and USFWS have determined that this loss would constitute an adverse impact on the lesser long-nose bat. Conservation measures developed through the Section 7 consultation process would be implemented by USBP to offset these impacts. For example, saguaro and other columnar cacti, which are main food sources for the lesser long-nosed bats, that are located within the project footprint would be removed, avoided, relocated, or replaced as part of the construction activities. Specifications regarding the size of columnar cacti to be relocated or replaced are presented in Section 6.0. Examples of other conservation measures that have been identified and would be implemented include the following:

1. Clearly demarcate the construction footprint to ensure construction contractors do not expand the disturbance area.
2. Salvage of lesser-long nosed bat food plants from areas to be disturbed by project activities as described in the salvage plan.
3. Complete a restoration plan for various illegal trails and roads to compensate for creation or improvement of roads needed for the fence project (in addition to other concerns, this will address the control of non-native, invasive plant species) within six months of issuance of the Biological Opinion.

Although no Sonoran desert tortoises or Mexican rosy boas were observed within the project corridor, the potential exists for them to occur near Sonoyta Hill. Wildlife strikes could be caused by construction vehicles or USBP patrol vehicles during project construction, maintenance activities, and during future USBP operations. However, the likelihood of these strikes are low because of the ability of most wildlife species to escape to surrounding habitat and the relatively low vehicle speed of construction and USBP patrol vehicles, especially in this rugged terrain. Due to the beneficial impacts of a reduction of habitat degradation north of the project corridor

combined with mitigation measures discussed in Section 6, these potential impacts to these two species are considered insignificant.

Additionally, the cactus ferruginous-pygmy owl has the potential to exist in the project corridor. However, the habitat in the project corridor is extremely limited and classified as ranging from poor to moderate with the exception of the western slope of Sonoyta Hill (NPS 2003). Therefore, due to the previously disturbed nature of some of the project corridor in conjunction with the limited quality habitat available, CBP has determined that the Proposed Action Alternative would not adversely affect the cactus ferruginous pygmy owl.

Indirect adverse impacts to potentially suitable habitat for protected species along the southwest border could occur due to IAs shifting their activities in order to avoid apprehension. It is impossible, however, for USBP to determine how much of the illegal pedestrian traffic currently entering the project corridor would shift either to the east, west, or be eliminated completely. The implementation of the Proposed Action Alternative would reduce or eliminate illegal foot traffic north of the primary pedestrian fence within the project corridor, protecting habitat that could otherwise be disturbed and permanently degraded. Further, because the primary pedestrian fence would act as a force multiplier, USBP would be able to deploy agents to those areas without primary pedestrian fence, minimizing potential indirect impacts to protected species habitat.

4.6.3 Critical habitat

No critical habitat exists near or within the project corridor; therefore, no direct impacts would be expected. Indirect adverse impacts could occur to areas outside of the project corridor (*i.e.*, Quitobaquito Springs); however, these potential impacts are outside of the USBP's control. IA movement, if any, to avoid the proposed infrastructure would be totally at the IAs discretion. Because the primary pedestrian fence would act as a force multiplier, USBP would be able to deploy agents to those areas lacking primary pedestrian fence and therefore, minimize potential indirect impacts.

Water would be trucked into the project corridor from sources located north of the OPCNM. These sources would be located within a completely different watershed and basin than Quitobaquito Springs. Therefore, the use of groundwater for the implementation of this project is

not expected to cause a deficit of water availability nor a drop in hydrostatic pressure for Quitobaquito Springs.

4.7 CULTURAL RESOURCES

4.7.1 Alternative 1: No Action Alternative

No impacts to cultural resources are expected, as no construction activities would occur. However, indirect adverse impacts to cultural resources as a result of continued IA pedestrian traffic disturbing cultural resources north of the project corridor could occur, and could potentially increase.

4.7.2 Alternative 2: Proposed Action Alternative

Three historic objects, International Boundary Monument 166, 167, and 168 are located within the project corridor and could be potentially affected by the Proposed Action Alternative. The historic objects are listed on the NRHP and are considered significant cultural resources. Mitigation measures to avoid adverse impacts to the cultural resources are outlined in Section 6 of this document. These measures, as well as other potential mitigation measures developed through consultation with the Arizona State Historic Preservation Officer (SHPO), would assure that no adverse impacts would occur to these cultural resources. SHPO concurrence with USBP's determination of "no affect to historic properties" is included in Appendix C.

As a result, the Proposed Action Alternative would not result in significant impacts on cultural resources provided mitigation measures, which will be identified through the Section 106 process, are properly implemented.

4.8 AIR QUALITY

4.8.1 Alternative 1: No Action Alternative

No impacts to air quality are expected as no construction activities would occur. However, indirect adverse impacts to air quality from illegal pedestrian traffic and subsequent USBP enforcement activities would occur, and could potentially increase.

4.8.2 Alternative 2: Proposed Action Alternative

Fugitive dust or PM-10 from soil disturbance, and emissions associated with construction equipment engines, are expected to create temporary, minor increases in air pollution in the project corridor. Due to the short duration of the construction project, any increases or impacts on ambient air quality are expected to be short-term and below levels that would cause Pima County to be in non-attainment for air quality standards.

A model was used to estimate the total air emissions from the new construction activities. Calculations were made for standard construction equipment such as drilling rigs, hole cleaners, generators, cement trucks, backhoes, cranes, and bulldozers using emission factors from EPA approved emission model NONROAD6.2. Model results for air emissions are presented in Appendix D. Fugitive dust emissions were calculated using emission factors from Mid-Atlantic Regional Air Management Association (MARAMA 2006) for the primary pedestrian fence construction.

Assumptions were made regarding the type of equipment, duration of the project, and the number of hours per day each type of equipment would be used. The assumptions, emission factors, and resulting calculations are presented in Appendix D. A summary of the total emissions are presented in Table 4-1. As Pima County is in attainment for all air quality standards, an air conformity analysis is not required.

Table 4-1. Total Air Emissions (tons/year) from Construction Activities

Pollutant	Total (tons/year)
Carbon Monoxide	23.49
Volatile Organic Compounds	5.28
Nitrogen Oxides	43.93
Particulate Matter <10 microns	32.92
Particulate Matter < 2.5 microns	9.52
Sulfur Dioxide	5.38

Source: 40 CFR 51.853 and Gulf South Research Corporation (GSRC) 2007

Impacts from combustible air emissions due to everyday USBP traffic are expected to be the same after the primary pedestrian fence is built as they are currently. Construction workers would temporarily increase the combustible emissions in the air shed during their commute to and from work. Supplies would have to be delivered to the site by large delivery trucks. The

emissions from supply trucks and workers commuting to work were included in the air emission analysis (Appendix D) and in the totals presented in Table 4-1.

During the construction of the proposed project, proper maintenance of all vehicles and other construction equipment shall be implemented to ensure that emissions are within the design standards of all construction equipment. Dust suppression methods (*e.g.*, watering of soils) shall be implemented to minimize fugitive dust emissions. Such measures would further ensure that air emissions generated by the Proposed Action Alternative would be temporary and would not significantly impair air quality in the region.

Indirect impacts to air quality due to the shifting of illegal traffic in order to avoid the proposed infrastructure is possible; however, it is unknown where IAs would choose to breach the U.S.-Mexico border. Therefore, it is impossible for USBP to determine how much of the illegal traffic currently entering the project corridor would shift either to the west or be eliminated completely.

4.9 WATER RESOURCES

4.9.1 Alternative 1: No Action Alternative

No impacts to water resources as a result of the No Action Alternative are expected because no construction activities would occur.

4.9.2 Alternative 2: Proposed Action Alternative

No wetlands would be either directly or indirectly impacted as a result of this alternative as none exist within the project corridor. A total of 16 intermittent streams cross the project corridor. All appropriate CWA Section 404 Permits from the U.S. Army Corps of Engineers (USACE) Los Angeles District Regulatory Branch, as well as Section 401 Water Quality Certifications from the Arizona Department of Environmental Quality, would be obtained prior to any fill material being placed in potential jurisdictional waters of the U.S. As mentioned previously, the primary pedestrian fence and road would be designed and constructed in a manner that would not alter drainage patterns or exacerbate erosion and sedimentation problems. Pre- and post-construction BMPs would also be implemented to further reduce the potential for erosion and sedimentation. Some of these measures are described in Section 6.0. Furthermore, as mentioned in Section 2.2, USBP would be responsible for maintaining the primary pedestrian fence and assuring that any

debris accumulated along the primary pedestrian fence during rain events is quickly removed to prevent backwater flooding.

Although the project corridor traverses the 100-year floodplain, no adverse impacts are expected. The design of the primary pedestrian fence will incorporate features to ensure that flows and flood elevations within the floodplain are not adversely modified, both locally and regionally. CBP has determined that there is no other practicable alternative to constructing sections of the fence within the floodplain, as the border bisects the floodplain and the proposed fence must be located on the border. Therefore, the Proposed Action Alternative would not contradict E.O. 11988 nor create significant impacts to floodplains.

It is estimated that a range of 5.2 to 11.4 acre-feet of water would be required for dust suppression and construction activities. Water would be obtained from a source north of the OPCNM (e.g., Why, Ajo, or Gila Bend) and be trucked in to the project corridor. The use of water from these sources would not create a deficit either locally or regionally. Therefore, no significant impacts to groundwater within the project corridor would be expected.

During construction activities, degradation of water quality as a result of sediment transported by stormwater within any of the washes located within the project corridor would be minimized by implementing the SWPPP and best management practices (BMPs). Equipment required for the construction activities would not be staged or stored within 100 feet of washes to prevent any contamination from accidental petroleum, oil, and lubricants (POL) spills that could occur. Additionally, the primary pedestrian fence within washes would be designed and constructed to ensure that the primary pedestrian fence does not impede flow nor contribute significantly to sedimentation or erosion within the washes. Therefore, no significant impacts to surface waters would be expected.

Indirect impacts associated with the construction process would be insignificant, and minimized through the implementation of mitigation measures discussed in Section 6.0. Additional indirect impacts to water quality outside of the project corridor could also occur as IAs attempt to circumvent the proposed infrastructure. However, it is unknown at this time where, when, or if IAs will try to circumvent the project corridor, as this is completely out of USBP control and totally at the IAs' discretion. Although it is unknown where IAs might try to circumvent the proposed infrastructure, the primary pedestrian fence would act as a force multiplier and allow USBP to

deploy agents to unprotected areas. Thus, any potential indirect impacts to water resources outside the project corridor would be further minimized.

4.10 SOCIOECONOMICS

4.10.1 Alternative 1: No Action Alternative

No impacts to the region's socioeconomic resources would occur under the No Action Alternative, as no construction activities would take place. However, the current level of illegal pedestrian traffic would continue at its current rate and possibly increase. As a result, illegal traffic and the crimes and social costs associated with it would also continue or increase; thus, long-term, adverse socioeconomic impacts across the region would be incurred.

4.10.2 Alternative 2: Proposed Action Alternative

Direct beneficial impacts from the Proposed Action Alternative include minor and temporary increases in sales volumes, housing demands for construction crews, material purchases, and sales taxes. Additionally, implementation of the Proposed Action Alternative would reduce the amount of illegal pedestrian traffic in the region, which, in turn, would reduce the associated societal and economic costs to the region. These societal and economic costs include but are not limited to the costs of removal of trash, overall degradation of property, reduction in property value, and degradation of natural and cultural resources (*i.e.*, OPCNM). Consequently, this reduction in illegal traffic would have an indirect beneficial long-term impact to the local economy.

Impacts regarding E.O. 13045 and E.O. 12898 from the implementation of the Proposed Action Alternative would be similar to those previously discussed in the 2003 Final EA and are incorporated herein by reference (NPS 2003). Given the remote location of the primary pedestrian fence, there is no potential for disproportionately high and adverse impacts to minority populations and low income families. The primary pedestrian fence would reduce illegal traffic north of the project corridor, making it safer for everyone regardless of race, nationality, age, or income level. Therefore, no significant impacts relative to environmental justice or protection of children issues are expected as a result of the Proposed Action Alternative.

Indirect impacts could occur to areas outside of the project corridor if illegal pedestrian traffic shifts to other areas of the U.S.-Mexico border (*i.e.*, TON). However, it is impossible to determine what those impacts would be, if any, as the direction or lack thereof is solely at the discretion of the

IAs. As mentioned previously, the primary pedestrian fence would allow USBP to deploy agents to those areas lacking infrastructure to minimize impacts from any potential shift in IA traffic.

4.11 NOISE

4.11.1 Alternative 1: No Action Alternative

No noise impacts would occur as a result of the No Action Alternative because construction activities would not occur. However, indirect adverse impacts from illegal pedestrian traffic and consequent USBP enforcement activities would continue and possibly increase.

4.11.2 Alternative 2: Proposed Action Alternative

Noise levels created by the transport of construction vehicles, construction equipment, and construction activities would vary depending on several factors, such as climatic conditions, season, and the condition of the equipment. All construction and transport activities would occur during daylight hours. OPCNM and its associated Wilderness Area are considered sensitive noise receptors within the region. However, noise levels would decrease to an inaudible level as the distance between the construction activities and the noise receptors (OPCNM and Wilderness Area) increases. As mentioned in Section 3.11, noise from construction equipment would be reduced to 55 dBA (*i.e.*, acceptable noise level) within 2,600 feet. Additionally, the project corridor is located adjacent to the Lukeville POE and Sonoyta, Mexico, which are constant sources of noise within the region. Therefore, because the increased noise levels would be temporary and minor, no direct significant impacts to ambient noise levels would occur upon completion of construction.

Indirect impacts as a result of IAs trying to circumvent the proposed infrastructure could occur to areas outside the project corridor. However, it is impossible for USBP to determine how much of the illegal traffic would shift either to the east, west, or be eliminated completely.

4.12 AESTHETICS

4.12.1 Alternative 1: No Action Alternative

No impacts to aesthetics would occur upon implementation of the No Action Alternative as no construction activities would occur. However, indirect adverse impacts to aesthetics as a result of IAs trampling vegetation and leaving trash and debris would continue and possibly increase.

4.12.2 Alternative 2: Proposed Action Alternative

The construction of 0.65 miles of primary pedestrian fence over the Sonoyta Hill would create additional impacts as compared to the No Action Alternative. However, due to the existing infrastructure surrounding Sonoyta Hill combined with mitigation measures (see Section 6.8), these impacts would not be considered significant. The construction of 5.2 miles of primary pedestrian fence would not differ substantially from the existing border infrastructure (e.g., chain link fence, PVBs). In addition, the Lukeville POE, illegal trails, trash, and developments within Sonoyta, Mexico also detract from the visual qualities of the project corridor, as shown previously in Photographs 3-1 through 3-3. A short term minimal impact to aesthetics would occur during construction; however, there would be no long term significant adverse impacts on the visual quality of the region.

Indirect adverse impacts related to the possibility of IAs circumventing the proposed primary pedestrian fence would be similar to those mentioned previously. Beneficial indirect impacts would be expected as the primary pedestrian fence would eliminate IA traffic and associated trash and illegal trails in the project corridor.

4.13 Hazardous and Solid Waste

4.13.1 Alternative 1: No Action Alternative

No impacts regarding hazardous or solid waste are expected, as no construction activities would occur.

4.13.2 Alternative 2: Proposed Action Alternative

The potential exists for POL spills to occur while refueling construction equipment used during the implementation of the Proposed Action Alternative. However, clean-up materials (e.g., oil mops) would be maintained at the project site to allow immediate action in case an accidental spill occurs. Drip pans would be provided for stationary equipment to capture any POL that is accidentally spilled during maintenance activities or leaks from equipment. In addition, a Spill Prevention, Control, and Countermeasures Plan (SPCCP) would be in place prior to the start of construction, and all personnel would be briefed on the implementation and responsibilities of this plan. OPCNM would be provided a copy of the SPCCP prior to construction activities.

Sanitary facilities would be provided during construction activities and waste products would be collected and disposed of by licensed contractors. No gray water would be discharged to the ground. Disposal contractors would dispose of all waste in strict compliance with Federal, state, and local regulations, in accordance with the contractor's permits.

The proposed infrastructure would also have indirect beneficial impacts through the reduction of solid waste. As illegal foot traffic is reduced or eliminated within the project corridor, so would the solid waste that is associated with it.

SECTION 5.0
CUMULATIVE IMPACTS

5.0 CUMULATIVE IMPACTS

This section of the EA addresses the potential cumulative impacts associated with the implementation of the alternatives and other projects/programs that are planned for the region. The CEQ defines cumulative impacts as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 CFR 1508.7). This section continues, “Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”

USBP has been conducting law enforcement actions along the border since its inception in 1924 and has continuously transformed its methods as new missions, IA modes of operations, agent needs and national enforcement strategies have evolved. Development and maintenance of training ranges, station and sector facilities, detention facilities, and roads and fences have impacted thousands of acres with synergistic and cumulative impacts to soil, wildlife habitats, water quality, and noise. Beneficial effects, too, have resulted from the construction and use of these roads and fences including, but not limited to, increased employment and income for border regions and its surrounding communities; protection and enhancement of sensitive resources north of the border; reduction in crime within urban areas near the border; increased land value in areas where border security has increased; and increased knowledge of the biological communities and pre-history of the region through numerous biological and cultural resources surveys and studies.

With continued funding and implementation of CBP’s environmental conservation measures, including environmental education and training of its agents; use of biological and archeological monitors; wildlife water systems; and restoration activities, adverse impacts due to future and on-going projects would be avoided or minimized. However, recent, on-going and reasonably foreseeable proposed projects will result in cumulative impacts. In particular, within the next 2 years, 225 miles are scheduled to be completed. The first phase of construction would occur in areas that have already been developed (e.g., currently contains PVB or temporary vehicle barriers [TVB]) and thus, little or no additional environmental impacts would be expected. The second phase of construction would generally occur in more remote areas, and would inevitably result in cumulative impacts. It should be noted that the final locations for the primary

pedestrian fence have not been determined yet so, these should be considered only as planning estimates.

A list of the past, on-going, and other proposed projects within the region surrounding the Ajo Station's AO are summarized in Table 5-1:

Table 5-1. Recently Completed or Reasonably Foreseeable USBP projects in Ajo Station's AO

Project	Approximate Distance from Project Corridor (miles)	Approximate Acres Permanently Impacted
Installation of 26 emergency beacons within the CPNWR and BMGR	24	0
Implementation of Operation Skywatch (a seasonal search and rescue mission using helicopters and fixed-wing aircraft)	0	0
Proposed construction of 36 miles of pedestrian barrier, 35 miles of patrol and drag road, eight water wells, two new temporary staging areas, five existing staging areas, and approximately 7.5 miles of improvements to north-south access roads	70	198
Proposed acquisition of 30 acres adjacent to the USBP Ajo Station for horse corral, station expansion, and parking	30	30
Proposed installation of five camp details, access and maintenance of approximately 300 miles of roads on CPNWR and BMGR, installation of eight temporary vehicle barriers, construction of 104 miles of all-weather road, construction of 114 miles of drag roads, and construction of approximately 36 miles of permanent vehicle barriers on the CPNWR	40	589
Proposed installation of two additional rescue beacons on CPNWR	18	0
Proposed installation of 12 RVS systems along the U.S.-Mexico border south of Ajo, Arizona	30	1
Proposed improvement of 80 miles of all weather patrol road and construction of 50 miles of PVBs on TON as well as a construction access road for the installation and maintenance of the PVBs	15	72
Proposed installation of a water well and upgrade of Desert Grip camp detail including road improvements in the Wellton Station's AO	25	14
New infrastructure at the Lukeville – Sonoyta crossing including office space, light industrial space, health unit space, and warehouse/storage space (Garcia 2007)	0	1
Proposed widening of the El Camino Del Diablo to approximately 18-feet wide.	15	62
Proposed installation of 14 tower sites in the Ajo Station AO.	15	7
Total		974 acres

The USBP might be required to implement other activities and operations that are currently not foreseen or mentioned in this document. These actions could be in response to National emergencies or security events like the terrorist attacks on September 11, 2001 or to changes in the mode of operations of the potential IAs.

In addition, projects are currently being planned by other Federal entities which could affect areas in use by USBP. CBP should maintain close coordination with these agencies to ensure that CBP activities do not conflict with other agency(s) policies or management plans. CBP will consult with applicable state and Federal agencies prior to performing any construction activities and will coordinate operations so that it does not impact the mission of other agencies. The following is a list of projects other Federal agencies and tribes are conducting or have completed within the U.S.-Mexico border region.

OPCNM:

1. Planned installation of fiber optic cable along State Route 85 from the northern boundary of the OPCNM to the Visitors Center (Kralovec 2007b).
2. Proposed installation of approximately 2 miles of new water line from the Visitors Center to the Camp Grounds (Kralovec 2007b).

A summary of the anticipated cumulative impacts relative to the Proposed Action Alternative (*i.e.*, construction of 5.2 miles of primary pedestrian fence within the Ajo Station) is presented below. These discussions are presented for each of the resources described previously.

Land Use. A significant impact would occur if any action is inconsistent with adopted land use plans or an action would substantially alter those resources required for, supporting or benefiting the current use. The Proposed Action Alternative would only permanently affect 45 acres, of which 38 are located in the Roosevelt Reservation that was set aside specifically for border control actions. The use of 7 acres of NPS lands on the OPCNM would not be considered cumulatively significant as the OPCNM encompasses over 330,000 acres and the impact would account for less than 0.002 percent of the OPCNM total acreage. In addition, a Special Use Permit would be obtained by USBP for the use of this land for construction of the road and fence which acts as a tool to protect the remainder of the park. Therefore, this action within the Roosevelt Reservation is consistent with the authorized land use and, when

considered with other potential alterations of land use, would not be expected to result in a significant cumulative adverse effect.

Soils. A significant impact would occur if the action exacerbates or promotes long-term erosion, if the soils are inappropriate for the proposed construction, and would create a risk to life or property; or if there would be a substantial reduction in agricultural production or loss of prime farmland soils. The proposed action and other USBP actions have not reduced prime farmland soils or agricultural production. Pre- and post-construction SWPPP measures would be implemented to control soil erosion. No inappropriate soil types are located in the project corridor that would present a safety risk. The impact to 45 acres, including 17 acres of previously disturbed soils, when combined with past and proposed projects in the region, would not be considered a significant cumulative adverse impact.

Biological Resources. The significance threshold for biological resources would include a substantial reduction in ecological process, communities, or populations that would threaten the long-term viability of a species or result in the substantial loss of a sensitive community that could not be off-set or otherwise compensated. Removal of 28 acres of locally common habitat would result in insignificant cumulative impacts to vegetation communities and wildlife populations since habitat in the project corridor is regionally common. The long-term viability of species and communities in the project region would not be threatened. The loss of 28 acres of wildlife habitat, when combined with other ground disturbing or development projects in the project region, would not result in significant cumulative negative impacts on the region's biological resources.

Cultural Resources. The proposed action would have no effect on cultural resources. Therefore, this action, when combined with other existing and proposed projects in the region, would not result in significant cumulative impacts to historical properties.

Air Quality. Impacts to air quality would be considered significant if the action resulted in a violation of air quality standards, obstructs implementation of an air quality plan, or exposes sensitive receptors to substantial pollutant concentrations. The emissions generated during and after the construction of the proposed primary pedestrian fence would be short-term and minor. Although maintenance of the primary pedestrian fence would result in cumulative impacts to the region's airshed, these impacts would not be considered significant even when combined with

the other proposed developments in the border region. Deterrence of and improved response time to IAs created by the construction of the primary pedestrian fence would reduce off-road enforcement actions that are currently required by USBP agents.

Water Resources. The significance threshold for water resources include any action that substantially depletes groundwater or surface water supplies or interferes with groundwater recharge, substantially alters drainage patterns, or results in the loss of waters of the U.S. that cannot be compensated. No significant impact to water resources would occur as a result of the construction and maintenance of the proposed primary pedestrian fence. The required SWPPP and BMPs would reduce erosion and sedimentation during construction to negligible levels and would eliminate post-construction erosion and sedimentation from the site. The same measures would be implemented for other construction projects; therefore, cumulative impacts would not be significant.

Socioeconomics. Significance threshold for socioeconomic conditions include displacement or relocation of residences or commercial buildings; increases in long-term demands to public services in excess of existing and projected capacities; and disproportionate impacts to minority and low income families. Construction of the proposed infrastructure would result in temporary cumulative beneficial impacts to the region's economy. No impacts to residential areas, population, or minority or low-income families would occur. These effects, when combined with the other currently proposed or on-going projects within the region, would not be considered as significant cumulative impacts.

Noise. Actions would be considered to cause significant impacts if they permanently increase ambient noise levels over 65 dBA. Most of the noise generated by the proposed action would occur during construction and, thus, would not contribute to cumulative impacts to ambient noise levels. Routine maintenance of the primary pedestrian fence would result in slight temporary increases in noise levels that would continue to sporadically occur over the long-term and would be similar to ongoing PVB maintenance within the project corridor. Potential sources of noise from other projects are not enough (temporal or spatial) to increase ambient noise levels above the 65 dBA range at the proposed sites. Thus, the noise generated by the construction and maintenance of the proposed infrastructure, when considered with the other existing and proposed projects in the region, would not be considered a significant cumulative adverse effect.

Aesthetics. Actions that cause the permanent loss of the characteristics that make an area visually unique or sensitive would be considered to cause a significant impact. No major impacts to visual resources would occur from implementing the proposed action, due in part to the heavily degraded nature of the project corridor, development on the south side of the border, and the existing border tactical infrastructure. Construction and maintenance of the proposed primary pedestrian fence, when considered with existing and proposed developments in the surrounding area, would not result in a significant cumulative negative impact on the visual quality of the region. Areas north of the border would experience beneficial, indirect cumulative effects by the reduction of trash and debris produced by IAs.

Hazardous and Solid Wastes. Significant impacts would occur if an action creates a public hazard, the site is considered a hazardous waste site that poses health risks, or if the action would impair the implementation of an adopted emergency response or evacuation plan. Only minor increases in the use of hazardous substances (*e.g.*, POL) would occur as a result of the construction and maintenance of the primary pedestrian fence. No health or safety risks would be created by the proposed action. The effects of this proposed action, when combined with other on-going and proposed projects in the region, would not be considered a significant cumulative effect.

SECTION 6.0
MITIGATION MEASURES

6.0 MITIGATION MEASURES

This chapter describes those measures that would be implemented to reduce or eliminate potential adverse impacts to the human and natural environment. Many of these measures have been incorporated as standard operating procedures by USBP on past projects. It is USBP policy to mitigate adverse impacts through the sequence of avoidance, minimization, and finally, compensation. Mitigation measures are presented below for each resource category that would be potentially affected. It should be noted that if any of the alternatives for this project are implemented, the following mitigation measures could be employed.

6.1 GENERAL CONSTRUCTION ACTIVITIES

BMPs would be implemented as standard operating procedures during all construction activities, and would include proper handling, storage, and/or disposal of hazardous and/or regulated materials. To minimize potential impacts from hazardous and regulated materials, all fuels, waste oils and solvents would be collected and stored in tanks or drums within a secondary containment system that consists of an impervious floor and bermed sidewalls capable of containing the volume of the largest container stored therein. The refueling of machinery would be completed following accepted industry guidelines, and all vehicles could have drip pans during storage to contain minor spills and drips. Although it will be unlikely for a major spill to occur, any spill of reportable quantities would be contained immediately within an earthen dike, and the application of an absorbent (e.g., granular, pillow, sock, *etc.*) would be used to absorb and contain the spill. Furthermore, any petroleum liquids (e.g., fuel) or material listed in 40 CFR 302 Table 302.4 of a reportable quantity must be cleaned up and reported to the appropriate Federal and state agencies. Reportable quantities of those substances listed on 40 CFR 302 Table 302.4 would be included as part of the SPCCP. A SPCCP would be in place prior to the start of construction and all personnel would be briefed on the implementation and responsibilities of this plan.

All construction would follow DHS management directive 5100 for waste management. All waste oil and solvents would be recycled. All non-recyclable hazardous and regulated wastes would be collected, characterized, labeled, stored, transported and disposed of in accordance with all Federal, state, and local regulations, including proper waste manifesting procedures.

Solid waste receptacles would be maintained at staging and bivouac areas. Non-hazardous solid waste (trash and waste construction materials) would be collected and deposited in the on-site receptacles. Solid waste would be collected and disposed of by a local waste disposal contractor. Waste materials and other discarded materials would be removed from the site as quickly as possible in an effort to keep the project area and surroundings free of litter.

Waste water (water used for project purposes that is contaminated with construction materials, was used for cleaning equipment and thus carries oils or other toxic materials or other contaminants in accordance with state regulations) is to be stored in closed containers on site until removed for disposal. Concrete wash water would not be dumped on the ground, but is to be collected and moved offsite for disposal.

6.2 SOILS

Erosion control techniques, such as the use of straw bales (weed free straw), aggregate materials, wetting compounds (*i.e.*, water) and revegetation with native plant species, where possible, would be incorporated with the design of the Proposed Action Alternative. In addition, other erosion control measures, as required and promulgated through the SWPPP, would be implemented before and after construction activities.

6.3 BIOLOGICAL RESOURCES

All contractors, work crews (including National Guard and military personnel), and CBP personnel in the field performing construction and maintenance activities would receive training on the habitat and habits of the species that are found in the area, including information on how to avoid impacts to the species from their activities. This training would be provided to all contractor and work crew project managers and senior military leaders who are working onsite. It would be the responsibility of these project managers and senior military leaders to ensure that their personnel are familiar with the BMPs and other limitations and constraints.

CBP would truck water into the project site for purposes of construction to ensure that no impacts to flora or fauna near and within Quitobaquito Springs would occur.

The MBTA requires that Federal agencies coordinate with USFWS if a construction activity would result in the “take” of a migratory bird. Since construction or clearing activities cannot be scheduled to avoid the nesting season (typically March 15 through September 15), preconstruction surveys for migratory bird species would occur immediately prior to the start of any construction activity to identify active nests. If construction activities would result in the “take” of a migratory bird, then coordination with USFWS and AGFD would occur, and applicable permits would be obtained prior to construction or clearing activities.

Although no Sonoran desert tortoises or Mexican rosy boas were observed during biological surveys the potential exists for these species to occur in and near Sonoyta Hill. In the event a tortoise or boa is observed within the construction corridor during construction activities, a qualified biologist would capture and relocate the individual to an area outside of the corridor but still on Sonoyta Hill.

CBP would truck water into the project site for purposes of construction to ensure that no impacts to flora or fauna near and within Quitobaquito Springs would occur.

A salvage plan would be developed by the CBP, in close coordination with NPS, prior to construction activities. CBP will salvage as many columnar cacti as possible. CBP will develop and fund a restoration plan, in coordination with the NPS to restore illegal trails and roads on OPCNM. This will enhance bat foraging opportunities.

Materials used for on-site erosion control would be free of non-native plant seeds and other plant parts to limit potential for infestation. Additionally, all areas within the construction footprint would be monitored for a period of three years for the spread and eradication of non-native and invasive species. Construction equipment would be cleaned using BMPs prior to entering and departing the OPCNM to minimize the spread and establishment of non-native and invasive species.

6.4 CULTURAL RESOURCES

Construction near the Gachado Line Camp would be monitored by a professional archeological monitor to ensure no impacts would occur. Buffers would be established around the three historic objects that lie within the proposed construction corridor in order to avoid any adverse effects to

these significant cultural resources. If any cultural material is discovered during the construction efforts, then all activities would halt until a qualified archeologist can be brought in to assess the cultural remains.

6.5 WATER RESOURCES

Standard construction procedures would be implemented to minimize the potential for erosion and sedimentation during construction. All work would cease during heavy rains and would not resume until conditions are suitable for the movement of equipment and material. In accordance with regulations of the EPA Phase II of the NPDES stormwater program, a SWPPP would be required for stormwater runoff from construction activities greater than 1 acre and less than 5 acres. Therefore, a SWPPP would be prepared and the NOI submitted prior to the start of any construction. Equipment required for the construction activities would not be staged or stored within 100 feet of any wash to prevent any contamination from accidental POL spills that could occur. Primary pedestrian fence constructed in washes/arroyos would be designed to ensure proper conveyance of floodwaters and to eliminate the potential to cause backwater flooding on either side of the U.S.-Mexico border. Immediately after rain events, CBP would be responsible for ensuring that debris is removed from the primary pedestrian fence within washes/arroyos to ensure that no backwater flooding occurs. Additionally, all concrete trucks would be washed and cleaned outside of the project corridor and OPCNM lands.

6.6 AIR QUALITY

Standard construction practices such as routine watering of the construction site would be used to control fugitive dust during the construction phases of the proposed project. Additionally, all construction equipment and vehicles would be required to be kept in good operating condition to minimize exhaust emissions.

6.7 NOISE

During the construction phase, short-term noise impacts are anticipated. All Occupational Safety and Health Administration requirements would be followed. On-site activities would be restricted to daylight hours with the exception of concrete pours and emergency situations. Construction equipment would possess properly working mufflers and would be kept properly tuned to reduce

backfires. Implementation of these measures would reduce the expected short-term noise impacts to an insignificant level in and around the construction site.

6.8 AESTHETICS

In order to minimize potential aesthetic impacts over Sonoyta Hill, CBP would use subdued and non-reflective materials to build the primary pedestrian fence. These materials are expected to blend with the landscape as it naturally rusts.

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SECTION 7.0
PUBLIC INVOLVEMENT

7.0 PUBLIC INVOLVEMENT

7.1 AGENCY COORDINATION

This chapter discusses consultation and coordination that has occurred during preparation of this document. Agency correspondence and consultation letters are included in Appendix C. Formal and informal coordination has been conducted with the following agencies:

- U.S. Fish and Wildlife Service (USFWS)
- U.S. Environmental Protection Agency (EPA)
- U.S. Section, International Boundary and Water Commission (USIBWC)
- Natural Resource Conservation Service (NRCS)
- Arizona State Historic Preservation Office (SHPO)
- Arizona Game and Fish Department (AGFD)
- Pima County Department of Environmental Quality
- National Park Service (NPS)
- Organ Pipe Cactus National Monument (OPCNM)
- U.S. Army Corps of Engineers, Los Angeles District (USACE)
- Federally Recognized Tribes

7.2 PUBLIC REVIEW

The draft EA was made available for public review for a period of 30 days, beginning on September 17, 2007, which is the day the Notice of Availability (NOA) was published in local newspapers. A copy of the NOA that was published, announcing the availability of the draft EA, is included on the following page. Comments received concerning the draft EA were addressed and, where appropriate, changes were incorporated into the final EA.

During the public review period, comments were received from USIBWC, TON, OPCNM, and AGFD. Copies of the comment letters are included in Appendix C as well as the comment/response matrix developed by CBP. In summary, USIBWC expressed their jurisdictional concerns pertaining to overland drainage flow into Mexico, maintenance of border monuments, and the structural integrity of proposed primary pedestrian fence. AGFD expressed its natural resource management concerns pertaining to habitat fragmentation and degradation, as well as the need to coordinate its responsibilities with CBP's mission. The OPCNM expressed concerns with traversing Sonoyta Hill and potential effects to groundwater supplies. The TON was

mainly concerned with viewshed and cultural landscape issues, and indirect effects of shifts in illegal traffic to the TON (see Appendix C).

Revisions to the Draft EA have been incorporated, as appropriate, to this Final EA, based on the comments received. In addition, CBP has coordinated with OPCNM to ensure that its primary concerns have been sufficiently addressed in this document.

TUCSON'S NEWSPAPERS

Tucson, Arizona

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COUNTY OF PIMA)

Debbie Capanear, being first duly sworn deposes and says: that she is the Legal Advertising Representative of the **TUCSON'S NEWSPAPERS COMPANY**, a corporation organized and existing under the laws of the State of Arizona, and that the said **TUCSON'S NEWSPAPERS PUBLISHING COMPANY** prints and publishes the Arizona Daily Star and Tucson Citizen, daily newspapers printed and published in the City of Tucson, Pima County, State of Arizona, and having a general circulation in said City, County, State and elsewhere, and that the attached

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was printed and published correctly in the entire issue of the said Arizona Daily Star and Tucson Citizen on each of the following dates, to-wit:

Sept. 17, 2007

Debbie Capanear

Subscribed and sworn to before me this 20th day of

Sept., 2007

Notary Public



SILVIA H VALDEZ
Notary Public - Arizona
Pima County
Expires 12/15/09

My commission expires _____

TNI AD NO. _____

NOTICE OF AVAILABILITY
DRAFT ENVIRONMENTAL
ASSESSMENT AND
DRAFT FINDING OF NO
SIGNIFICANT IMPACT
FOR THE INSTALLATION OF
5.2 MILES OF PRIMARY
FENCE U.S. BORDER PATROL
TUCSON SECTOR, ARIZONA

The public is hereby notified of the availability of the Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) to construct 5.2 miles of Primary Fence along the U.S.-Mexico border within the Ajo Station's Area of Operations (AO). This document addresses the construction of 0.65 miles of new primary fence and retrofitting 4.55 miles of existing permanent vehicle barriers with primary fence near the Lukeville Port-of-Entry.

This Draft EA and FONSI are available for review at the Ajo Public Library in Ajo, Arizona and are also available at the following URL: <http://ecso.swi.usace.army.mil>. Additional copies are available upon written request. Written comments can be submitted to: U.S. Army Corps of Engineers, Fort Worth District, ATTN: CESWF-PM-ECSO/McGregor, 819 Taylor Street, Room 3A28, Fort Worth, TX 76102 or via facsimile at (817) 886-6404. Comments must be received within 30 calendar days of the date of this publication.

Publish September 17, 2007
The Arizona Daily Star
Tucson Citizen

Publisher's Affidavit of Publication

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STATE OF ARIZONA }
COUNTY OF YUMA }

NOTICE OF AVAILABILITY
DRAFT ENVIRONMENTAL
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Julie Moreno or Patrick Norris, having been first duly sworn, deposes

and says: that The Sun is a newspaper of general circulation

published daily in the City of Yuma, County of Yuma, State of Arizona;

that (s)he is the publisher or business manager of said paper; that the

NOTICE OF AVAILABILITY

a printed copy of which, as it appeared in said paper, is hereto attached

and made a part of this affidavit, was published in The Sun

For ONE issues; that the date of the first

publication of said NOTICE OF AVAILABILITY

was SEPTEMBER 17, 2007 and the date of the last publication

being SEPTEMBER 17, 2007 and that the dates when said

NOTICE OF AVAILABILITY

was printed and published in said paper were

SEPTEMBER 17, 2007

Subscribed and sworn to before me, by the said Julie Moreno or Patrick Norris

19th day of September, 2007

Vigen P. Perez Notary Public

My commission expires May 10, 2009

SECTION 8.0
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8.0 REFERENCES

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SECTION 9.0
LIST OF PREPARERS

9.0 LIST OF PREPARERS

The following people were primarily responsible for preparing this Environmental Assessment.

NAME	AGENCY/ORGANIZATION	DISCIPLINE/EXPERTISE	EXPERIENCE	ROLE IN PREPARING EA
Patience E. Patterson, RPA	Architect-Engineer Resource Center	Archaeology	29 years, Professional Archeologist/Cultural Resource Manager	Project Manager, cultural resources review, and EA coordination
Charles McGregor	USACE, Fort Worth District, AERC	NEPA	10 years Environmental Management and Review	ECSO Project Manager, EA review and coordination
Suna Adam Knaus	Gulf South Research Corporation	Forestry/Wildlife	17 years, natural resources	EA review
Eric Webb, Ph.D.	Gulf South Research Corporation	Ecology/Wetlands	15 years experience in natural resources and NEPA studies	EA technical review
Chris Ingram	Gulf South Research Corporation	Biology/ Ecology	30 years EA/EIS studies	Project Coordinator/EA technical review
Josh McEnany	Gulf South Research Corporation	Forestry/Wildlife	7 years, natural resources and NEPA studies	Project Manager
Sharon Newman	Gulf South Research Corporation	GIS/graphics	11 years, GIS/graphics experience	GIS/graphics
Howard Nass	Gulf South Research Corporation	Forestry/Wildlife	17 years, natural resources	EA review
Shanna McCarty	Gulf South Research Corporation	Forestry	3 years natural resources	EA preparation
Steve Kolian	Gulf South Research Corporation	Environmental Science	10 years natural resources	EA preparation
Joanna Cezniak	Gulf South Research Corporation	Wildlife	9 years natural resources	EA preparation

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SECTION 10.0
ACRONYMS

10.0 ACRONYMS

AO	Area of Operation
ACHP	Advisory Council on Historic Preservation
ADWR	Arizona Department of Water Resources
AGFD	Arizona Game and Fish Department
ARPA	Archeological Resources Protection Act
BEA	Bureau of Economic Analysis
BMP	Best Management Practice
BMGR	Barry M. Goldwater Range
CAA	Clean Air Act
CBP	U.S. Customs and Border Protection
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CPNWR	Cabeza Prieta National Wildlife Refuge
CWA	Clean Water Act
DNL	Day-Night average sound Level
dB	Decibel
dBA	A-weighted Decibel
DHS	Department of Homeland Security
EA	Environmental Assessment
EPA	U.S. Environmental Protection Agency
E.O.	Executive Order
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
FR	Federal Register
GNEB	Good Neighbor Environmental Board
GSRC	Gulf South Research Corporation
IA	Illegal Alien
INS	Immigration and Naturalization Service
JTF-6	Joint Task Force Six
MBTA	Migratory Bird Treaty Act
MARAMA	Mid-Atlantic Regional Air Management Association
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NOA	Notice of Availability
NOI	Notice of Intent
OPCNM	Organ Pipe Cactus National Monument
PCDEQ	Pima County Department of Environmental Quality
PCPI	Per Capita Personal Income
POE	Port of Entry
POL	Petroleum, Oils, and Lubricants
PVB	Permanent Vehicle Barrier
ROI	Region of Influence

SHPO	State Historic Preservation Officer
SPCCP	Spill Prevention, Control, and Countermeasures Plan
SPEIS	Supplemental Programmatic Environmental Impact Statement
SWPPP	Storm Water Pollution Prevention Plan
TON	Tohono O'odham Nation
TPI	Total Personal Income
TVB	Temporary Vehicle Barrier
U.S.	United States
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USBP	U.S. Border Patrol
USFWS	U.S. Fish and Wildlife Service
WSC	Wildlife of Special Concern
WMDB	Western Mexican Drainage Basin

APPENDIX A
March 2006 Memorandum of Understanding

**Memorandum of Understanding
Among
U. S. Department of Homeland Security
and
U. S. Department of the Interior
and
U. S. Department of Agriculture
Regarding
Cooperative National Security and Counterterrorism
Efforts on Federal Lands along the United States' Borders**

I. Purpose and Scope

A. This Memorandum of Understanding (MOU) is made and entered into by the Department of Homeland Security (DHS), including and on behalf of its constituent bureau U.S. Customs and Border Protection (CBP) and the CBP Office of Border Patrol (CBP-BP); the Department of the Interior (DOI), including and on behalf of its constituent bureaus, the National Park Service (NPS), U.S. Fish and Wildlife Service (FWS), Bureau of Indian Affairs (BIA), Bureau of Land Management (BLM), and the Bureau of Reclamation (BOR); and the Department of Agriculture (USDA), including and on behalf of its constituent agency the U.S. Forest Service (USFS). Throughout this MOU, these three Departments, including their constituent agencies, may be referred to as "the Parties." Any reference to a bureau, agency, or constituent component of a Party shall not be deemed to exclude application to any appropriate bureau or constituent component of that Party. DHS recognizes that the BIA enters into this agreement only on its own behalf and not on behalf of any Indian tribe.

B. The geographic and jurisdictional scope of this MOU is nationwide. The Parties recognize the national security and counterterrorism significance of preventing illegal entry into the United States by cross-border violators (CBVs), including but not limited to the following: drug and human smugglers and smuggling organizations, foreign nationals, and terrorists and terrorist organizations. The Parties further recognize that damage to DOI and USDA-managed lands and natural and cultural resources is often a significant consequence of such illegal entry. The Parties are committed to preventing illegal entry into the United States, protecting Federal lands and natural and cultural resources, and - where possible - preventing adverse impacts associated with illegal entry by CBVs.

C. This MOU is intended to provide consistent goals, principles, and guidance related to border security, such as law enforcement operations; tactical infrastructure installation; utilization of roads; minimization and/or prevention of significant impact on or impairment of natural and cultural resources; implementation of the Wilderness Act, Endangered Species Act, and other related environmental law, regulation, and policy across land management agencies; and provide for coordination and sharing information

on threat assessments and other risks, plans for infrastructure and technology improvements on Federal lands, and operational and law enforcement staffing changes. This MOU provides guidance in the development of individual agreements, where appropriate, between CBP and land management agencies to further the provisions contained herein.

D. This MOU is entered into pursuant to the governing statutory authorities of each of the Parties.

E. The Parties acknowledge that CBP operation and construction within the sixty-foot "Roosevelt Reservation" of May 27, 1907 (along the US-Mexico border) and the sixty-foot "Taft Reservation" of May 3, 1912 (along the US-Canada border) is consistent with the purpose of those reservations and that any CBP activity (including, but not limited to, operations and construction) within the sixty-foot reservations is outside the oversight or control of Federal land managers.

F. This MOU supersedes any conflicting provision of any prior MOU or Memorandum of Agreement between the Parties or their subordinate bureaus or components.

II. Background

A. DHS, through its constituent bureaus (including CBP and its CBP-BP), is statutorily mandated to control and guard the Nation's borders and boundaries, including the entirety of the northern and southern land and water borders of the United States.

B. DOI and USDA, through their constituent bureaus, are statutorily charged as managers of Federal lands throughout the United States, including DOI and USDA lands in the vicinity of international borders that are administered as wilderness areas, conservation areas, national forests, wildlife refuges, units/irrigation projects of the Bureau of Reclamation, and/or units of the national park system. Tribal governments have primary management roles over tribal lands; however, the United States, through the BIA, may also have a stewardship or law enforcement responsibility over these lands. Many of these Federal and tribal lands contain natural and cultural resources that are being degraded by activities related to illegal cross-border movements.

C. The volume of CBVs can and has, in certain areas, overwhelmed the law enforcement and administrative resources of Federal land managers. In order to more effectively protect national security, respond to terrorist threats, safeguard human life, and stop the degradation of the natural and cultural resources on those lands, DOI and USDA land managers will work cooperatively with CBP to benefit from the enforcement presence, terrorist and CBV interdiction, and rescue operations of CBP.

III. Common Findings and Affirmation of the Parties

A. The Parties to this MOU recognize that CBP-BP access to Federal lands can facilitate rescue of CBVs on Federal lands, protect those lands from environmental damage, have a role in protecting the wilderness and cultural values and wildlife resources of these lands, and is necessary for the security of the United States. Accordingly, the Parties understand that CBP-BP, consistent with applicable Federal laws and regulations, may access public lands and waterways, including access for purposes of tracking, surveillance, interdiction, establishment of observation points, and installation of remote detection systems.

B. The Parties recognize that DOI and USDA have responsibility for enforcing Federal laws relating to land management, resource protection, and other such functions on Federal lands under their jurisdiction.

IV. Responsibilities and Terms of Agreement

A. The Parties Agree to the Following Common Goals, Policies, and Principles:

1. The Parties enter into this MOU in a cooperative spirit with the goals of securing the borders of the United States, addressing emergencies involving human health and safety, and preventing or minimizing environmental damage arising from CBV illegal entry on public lands;
2. The Parties will strive to both resolve conflicts at and delegate resolution authority to the lowest field operational level possible while applying the principles of this MOU in such manner as will be consistent with the spirit and intent of this MOU;
3. The Parties will develop and consistently utilize an efficient communication protocol respecting the chain of command for each of the Parties that will result in the consistent application of the goals, policies, and principles articulated in this MOU, and provide a mechanism that will, if necessary, facilitate the resolution of any conflicts among the Parties. If resolution of conflict does not occur at the local level, then the issue will be elevated first to the regional/sector office; if not resolved at the regional/sector level, then the issue will be elevated to the headquarters level for resolution;
4. The Parties will cooperate with each other to complete, in an expedited manner, all compliance that is required by applicable Federal laws not otherwise waived in furtherance of this MOU. If such activities are authorized by a local agreement as described in sub-article IV.B below, then the DOI, USDA, and CBP will complete the required compliance before executing the agreement;

5. The Parties will cooperate with each other to identify methods, routes, and locations for CBP-BP operations that will minimize impacts to natural, cultural, and wilderness resources resulting from CBP-BP operations while facilitating needed CBP-BP access;
6. The Parties will, as necessary, plan and conduct joint local law enforcement operations consistent with all Parties' legal authorities;
7. The Parties will establish a framework by which threat assessments and other intelligence information may be exchanged, including intelligence training to be conducted by all parties so that the intelligence requirements of each may be identified and facilitated;
8. The Parties will establish forums and meet as needed at the local, regional, and national levels to facilitate working relationships and communication between all Parties;
9. The Parties will develop and share joint operational strategies at the local, regional, and national levels, including joint requests for infrastructure and other shared areas of responsibility;
10. The Parties will share the cost of environmental and cultural awareness training unless otherwise agreed; and
11. The Parties will, as appropriate, enter into specific reimbursable agreements pursuant to the Economy Act, 31 U.S.C. §1535 when one party is to furnish materials or perform work or provide a service on behalf of another party.

B. Responsibilities and Terms Specific to DOI and USDA. The DOI and the USDA hereby recognize that, pursuant to applicable law, CBP-BP is authorized to access the Federal lands under DOI and USDA administrative jurisdiction, including areas designated by Congress as wilderness, recommended as wilderness, and/or wilderness study areas, and will do so in accordance with the following conditions and existing authorities:

1. CBP-BP agents on foot or on horseback may patrol, or pursue, or apprehend suspected CBVs off-road at any time on any Federal lands administered by the Parties;
2. CBP-BP may operate motor vehicles on existing public and administrative roads and/or trails and in areas previously designated by the land management agency for off-road vehicle use at any time, provided that such use is consistent with presently authorized public or administrative use. At CBP-BP's request, the DOI and the USDA will provide CBP-BP with keys, combinations, or other means necessary to

access secured administrative roads/trails. CBP-BP may drag existing public and administrative roads that are unpaved for the purpose of cutting sign, subject to compliance with conditions that are mutually agreed upon by the local Federal land manager and the CBP-BP Sector Chief. For purposes of this MOU, "existing public roads/trails" are those existing roads/trails, paved or unpaved, on which the land management agency allows members of the general public to operate motor vehicles, and "existing administrative roads/trails" are those existing roads/trails, paved or unpaved, on which the land management agency allows persons specially authorized by the agency, but not members of the general public, to operate motor vehicles;

- 3 CBP-BP may request, in writing, that the land management agency grant additional access to Federal lands (for example, to areas not previously designated by the land management agency for off-road use) administered by the DOI or the USDA for such purposes as routine patrols, non-emergency operational access, and establishment of temporary camps or other operational activities. The request will describe the specific lands and/or routes that the CBP-BP wishes to access and the specific means of access desired. After receiving a written request, the local Federal land manager will meet promptly with the CBP-BP Sector Chief to begin discussing the request and negotiating the terms and conditions of an agreement with the local land management agency that authorizes access to the extent permitted by the laws applicable to the particular Federal lands. In each agreement between CBP-BP and the local land management agency, the CBP-BP should be required to use the lowest impact mode of travel and operational setup reasonable and practicable to accomplish its mission. The CBP-BP should also be required to operate all motorized vehicles and temporary operational activities in such a manner as will minimize the adverse impacts on threatened or endangered species and on the resources and values of the particular Federal lands. However, at no time should officer safety be compromised when selecting the least impactful conveyance or operational activity. Recognizing the importance of this matter to the Nation's security, the CBP-BP Sector Chief and the local Federal land manager will devote to this endeavor the resources necessary to complete required compliance measures in order to execute the local agreement within ninety (90) days after the Federal land manager has received the written request for access. Nothing in this paragraph is intended to limit the exercise of applicable emergency authorities for access prior to the execution of the local agreement. The Secretaries of the Interior, Agriculture, and Homeland Security expect that, absent compelling justification, each local agreement will be executed within that time frame and provide the maximum amount of access requested by the CBP-BP and allowed by law;

4. Nothing in this MOU is intended to prevent CBP-BP agents from exercising existing exigent/emergency authorities to access lands, including authority to conduct motorized off-road pursuit of suspected CBVs at any time, including in areas designated or recommended as wilderness, or in wilderness study areas when, in their professional judgment based on articulated facts, there is a specific exigency/emergency involving human life, health, safety of persons within the area, or posing a threat to national security, and they conclude that such motorized off-road pursuit is reasonably expected to result in the apprehension of the suspected CBVs. Articulated facts include, but are not limited to, visual observation; information received from a remote sensor, video camera, scope, or other technological source; fresh "sign" or other physical indication; canine alert; or classified or unclassified intelligence. For each such motorized off-road pursuit, CBP-BP will use the least intrusive or damaging motorized vehicle readily available, without compromising agent or officer safety. In accordance with paragraph IV.C.4, as soon as practicable after each such motorized off-road pursuit, CBP-BP will provide the local Federal land manager with a brief report;
5. If motorized pursuits in wilderness areas, areas recommended for wilderness designation, wilderness study areas, or off-road in an area not designated for such use are causing significant impact on the resources, or if other significant issues warrant consultation, then the Federal land manager and the CBP-BP will immediately meet to resolve the issues subject to paragraphs IV.A.2 and IV.A.3 of this MOU;
6. CBP may request, in writing, that the land management agency authorize installation or construction of tactical infrastructure for detection of CBVs (including, but not limited to, observation points, remote video surveillance systems, motion sensors, vehicle barriers, fences, roads, and detection devices) on land under the local land management agency's administrative jurisdiction. In areas not designated as wilderness, the local Federal land manager will expeditiously authorize CBP to install such infrastructure subject to such terms and conditions that are mutually developed and articulated in the authorization issued by the land management agency. In areas designated or managed as wilderness, the local Federal land manager, in consultation with CBP, will promptly conduct a "minimum requirement," "minimum tool," or other appropriate analysis. If supported by such analysis, the local Federal land manager will expeditiously authorize CBP to install such infrastructure subject to such terms and conditions that are mutually developed and articulated in the authorization issued by the land management agency;

7. The DOI and USDA will provide CBP-BP agents with appropriate environmental and cultural awareness training formatted to meet CBP-BP operational constraints. The DOI and USDA will work with CBP-BP in the development and production of maps for use or reference by CBP-BP agents including, as appropriate, site-specific and resource-specific maps that will identify specific wildlife and environmentally or culturally sensitive areas;
8. The DOI and USDA will, as applicable, provide CBP-BP with all assessments and studies done by or on behalf of DOI or USDA on the effects of CBVs on Federal lands and native species to better analyze the value of preventative enforcement actions;
9. The DOI and USDA will assist CBP-BP in search and rescue operations on lands within the respective land managers' administration when requested;
10. The CBP-BP and land management agencies may cross-deputize or cross-designate their agents as law enforcement officers under each other agency's statutory authority. Such cross-deputation or cross-designation agreements entered into by the local land management agency and the field operations manager for the CBP-BP shall be pursuant to the policies and procedures of each agency; and
11. DOI and USDA will work at the field operations level with affected local CBP-BP stations to establish protocols for notifying CBP-BP agents when DOI or USDA law enforcement personnel are conducting law enforcement operations in an area where CBP-BP and DOI/USDA operations can or will overlap.

C. Responsibilities and Terms Specific to the CBP. DHS hereby agrees as follows:

1. Consistent with the Border Patrol Strategic Plan, CBP-BP will strive to interdict CBVs as close to the United States' international borders as is operationally practical, with the long-term goal of establishing operational control along the immediate borders;
2. If the CBP-BP drag any unpaved roads for the purpose of cutting sign under provision IV.B.2 above, then CBP-BP will maintain or repair such roads to the extent that they are damaged by CBP-BP's use or activities;
3. If CBP-BP agents pursue or apprehend suspected CBVs in wilderness areas or off-road in an area not designated for such use under

paragraph IV.B.5, then the CBP-BP will use the lowest impact mode of travel practicable to accomplish its mission and operate all motorized vehicles in such a manner as will minimize the adverse impacts on threatened or endangered species and on the resources and values of the particular Federal lands, provided officer safety is not compromised by the type of conveyance selected;

4. CBP-BP will notify the local Federal land manager of any motorized emergency pursuit, apprehension, or incursion in a wilderness area or off-road in an area not designated for such use as soon as is practicable. A verbal report is sufficient unless either CBP-BP or the land managing agency determines that significant impacts resulted, in which case a written report will be necessary;
5. If motorized pursuits in wilderness areas, areas recommended for wilderness designation, wilderness study areas, or off-road in an area not designated for such use are causing significant impact on the resources as determined by a land manager, or if other significant issues warrant consultation, then the CBP-BP and Federal land manager will immediately meet to resolve the issues subject to paragraphs IV.A.2 and IV.A.3 of this MOU;
6. CBP will consult with land managers to coordinate the placement and maintenance of tactical infrastructure, permanent and temporary video, seismic and other remote sensing sites in order to limit resource damage while maintaining operational efficiency;
7. CBP-BP will ensure that current and incoming CBP-BP agents attend environmental and cultural awareness training to be provided by the land management agencies;
8. CBP-BP will provide land management agencies with appropriate and relevant releasable statistics of monthly CBV apprehensions, search and rescue actions, casualties, vehicles seized, drug seizures and arrests, weapons seizures and arrests, and other significant statistics regarding occurrences on the lands managed by the land manager;
9. CBP-BP will consult with land managers in the development of CBP-BP's annual Operational-Requirements Based Budgeting Program to ensure affected land managers can provide input and are, in the early stages of planning, made aware what personnel, infrastructure, and technology the CBP-BP would like to deploy along the border within their area of operation; and
10. CBP-BP will work at the field operations manager level with affected local land management agencies to establish protocols for notifying

land management agency law enforcement officers when BP is conducting special operations or non-routine activities in a particular area.

V. Miscellaneous Provisions

A. Nothing in this MOU may be construed to obligate the agencies or the United States to any current or future expenditure of funds in advance of the availability of appropriations, nor does this MOU obligate the agencies or the United States to spend funds for any particular project or purpose, even if funds are available.

B. Nothing in this MOU will be construed as affecting the authority of the Parties in carrying out their statutory responsibilities.

C. This MOU may be modified or amended in writing upon consent of all Parties, and other affected Federal agencies may seek to become a Party to this MOU.

D. The Parties shall retain all applicable legal responsibility for their respective personnel working pursuant to this MOU with respect to, *inter alia*, pay, personnel benefits, injuries, accidents, losses, damages, and civil liability. This MOU is not intended to change in any way the individual employee status or the liability or responsibility of any Party under Federal law.

E. The Parties agree to participate in this MOU until its termination. Any Party wishing to terminate its participation in this MOU shall provide sixty (60) days written notice to all other Parties.

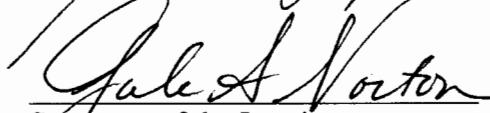
F. This document is an intra-governmental agreement among the Parties and does not create or confer any rights, privileges, or benefits upon any person, party, or entity. This MOU is not and shall not be construed as a rule or regulation.

In witness whereof, the Parties hereto have caused this Memorandum of Understanding to be executed and effective as of the date of the last signature below.

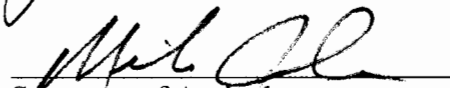
Date: 3/24/06


Secretary of Homeland Security

Date: 3/31/06


Secretary of the Interior

Date: 3/29/06


Secretary of Agriculture

APPENDIX B
List of State and Federal Protected Species for Pima County

Pima County

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Bald eagle	<i>Haliaeetus leucocephalus</i>	Threatened	Large, adults have white head and tail. Height 28-38 inches; wingspan 66-96 inches. Dark with varying degrees of mottled brown plumage. Feet bare of feathers.	Apache, Cochise, Coconino, Gila, Graham, La Paz, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai, Yuma	Varies	Large trees or cliffs near water (reservoirs, rivers, and streams) with abundant prey.	Some birds are nesting residents while a larger number winters along rivers and reservoirs. An estimated 200 to 300 birds winter in Arizona. Once endangered (32 FR 4001, 03-11-1967; 43 FR 6233, 02-14-78) because of reproductive failures from pesticide poisoning and loss of habitat, this species was down listed to threatened on August 11, 1995. Illegal shooting, disturbance, and loss of habitat continues to be a problem. Species has been proposed for delisting (64 FR 36454) but still receives full protection under the ESA.
California Brown pelican	<i>Pelecanus occidentalis californicus</i>	Endangered	Large dark gray-brown water bird with a pouch underneath long bill and webbed feet. Adults have a white head and neck, brownish black breast, and silver gray upper parts.	Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai, Yuma	Varies	Coastal land and islands; species found around many Arizona lakes and rivers.	Subspecies is found on Pacific Coast and is endangered due to pesticides. It is an uncommon transient in Arizona on many Arizona lakes and rivers. Individuals wander up from Mexico in summer and fall. No breeding records in Arizona.
Chiricahua leopard frog	<i>Rana chiricahuensis</i>	Threatened	Cream colored tubercles (spots) on a dark background on the rear of the thigh, dorsolateral folds that are interrupted and deflected medially, and a call given out of water distinguish this spotted frog from other leopard frogs.	Apache, Cochise, Coconino, Gila, Graham, Greenlee, Navajo, Pima, Santa Cruz, Yavapai	3300-8900 ft	Streams, rivers, backwaters, ponds, and stock tanks that are mostly free from introduced fish, crayfish, and bullfrogs.	Require permanent or nearly permanent water sources. Populations north of the Gila River may be a closely-related, but distinct, undescribed species. A special rule allows take of frogs due to operation and maintenance of livestock tanks on State and private lands.
Desert pupfish	<i>Cyprinodon macularius</i>	Endangered	Small (2 inches) smoothly rounded body shape with narrow vertical bars on the sides. Breeding males blue on head and sides with yellow on tail. Females and juveniles tan to olive colored back and silvery sides.	Graham, La Paz, Maricopa, Pima, Pinal, Santa Cruz, Yavapai	< 5,000 ft	Shallow springs, small streams, and marshes. Tolerates saline and warm water.	Critical habitat includes Quitobaquito Springs, Pima County, portions of San Felipe Creek, Carrizo Wash, and Fish Creek Wash, Imperial County, California. Two subspecies are recognized: Desert Pupfish (<i>C.m.macularis</i>) and Quitobaquito Pupfish (<i>C.m.eremus</i>).

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Gila chub	<i>Gila intermedia</i>	Endangered	Deep compressed body, flat head. Dark olive-gray color above, silver sides. Endemic to Gila River Basin.	Cochise, Gila, Graham, Greenlee, Maricopa, Pima, Pinal, Santa Cruz, Yavapai	2,000 - 5,500 ft	Pools, springs, cienegas, and streams.	Found on multiple private lands, including the Nature Conservancy, the Audubon Society, and others. Also occurs on Federal and state lands and in Sonora, Mexico. Critical habitat occurs in Cochise, Gila, Graham, Greenlee, Pima, Pinal, Santa Cruz and Yavapai counties.
Gila topminnow	<i>Poeciliopsis occidentalis occidentalis</i>	Endangered	Small (2 inches), guppy-like, live bearing, lacks dark spots on its fins. Breeding males are jet black with yellow fins.	Gila, Graham, La Paz, Maricopa, Pima, Pinal, Santa Cruz, Yavapai	< 4,500 ft	Small streams, springs, and cienegas vegetated shallows.	Species historically occurred in backwaters of large rivers but is currently isolated to small streams and springs.
Huachuca water umbel	<i>Lilaeopsis schaffneriana</i> ssp. <i>recurva</i>	Endangered	Herbaceous, semi-aquatic perennial in the parsley family (Umbelliferae) with slender erect, hollow, leaves that grow from the nodes of creeping rhizomes. Flower: 3 to 10 flowered umbels arise from root nodes.	Cochise, Pima, Santa Cruz	3500-6500 ft	Cienegas, perennial low gradient streams, wetlands.	Species also occurs in adjacent Sonora, Mexico, west of the continental divide. Critical habitat in Cochise and Santa Cruz counties (64 FR 37441, July 12, 1999).
Jaguar	<i>Panthera onca</i>	Endangered	Largest species of cat native to Southwest. Muscular, with relatively short, massive limbs, and a deep-chested body. Usually cinnamon-buff in color with many black spots. Weights ranges from 40-135 kg (90-300 lbs).	Cochise, Santa Cruz, Pima	1,600 - >9,000 ft	Found in Sonoran desertscrub up through subalpine conifer forest.	Also occurs in New Mexico. A Jaguar conservation team is being formed that is being led by Arizona and New Mexico state entities along with private organizations.
Kearney blue star	<i>Amsonia kearneyana</i>	Endangered	A herbaceous perennial about 2 feet tall in the dogbane family (Apocynaceae). Thickened woody root and many pubescent (hairy) stems that rarely branch. Flowers: white terminal inflorescence in April and May.	Pima	3600-3800 ft	West-facing drainages in the Baboquivari Mountains.	Plants grow in stable, partially shaded, coarse alluvium along a dry wash in the Baboquivari Mountains. Range is extremely limited. Protected by Arizona Native Plant Law.

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Lesser long-nosed bat	<i>Leptonycteris curasoae yerbabuenae</i>	Endangered	Elongated muzzle, small leaf nose, and long tongue. Yellowish brown or gray above and cinnamon brown below. Tail minute and appears to be lacking. Easily disturbed.	Cochise, Gila, Graham, Greenlee, Pima, Pinal, Maricopa, Santa Cruz	< 6000 ft	Desert scrub habitat with agave and columnar cacti present as food plants.	Day roosts in caves and abandoned tunnels. Forages at night on nectar, pollen, and fruit of paniculate agaves and columnar cacti. This species is migratory and is present in Arizona usually from April to September and south of the border the remainder of the year.
Masked bobwhite	<i>Colinus virginianus ridgewayi</i>	Endangered	Males brick-red breast and black head and throat. Females are generally nondescript but resemble other races such as the Texas bobwhite.	Pima	1000-4000 ft	Desert grasslands with diversity of dense native grasses, forbs, and brush.	Species is closely associated with <i>Acacia angustissima</i> . Formerly occurred in Altar and Santa Cruz valleys, as well as Sonora, Mexico. Presently only known from reintroduced populations on Buenos Aires NWR.
Mexican spotted owl	<i>Strix occidentalis lucida</i>	Threatened	Medium sized with dark eyes and no ear tufts. Brownish and heavily spotted with white or beige.	Apache, Cochise, Coconino, Gila, Graham, Greenlee, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai	4100-9000 ft	Nests in canyons and dense forests with multi-layered foliage structure.	Generally nest in older forests of mixed conifer or ponderosa pine/gambel oak type, in canyons, and use variety of habitats for foraging. Sites with cool microclimates appear to be of importance or are preferred. Critical habitat was finalized on August 31, 2004 (69 FR 53182). Critical habitat in Arizona occurs in Apache, Cochise, Coconino, Gila, Graham, Greenlee, Maricopa, Navajo, Pima, Pinal, Santa Cruz, and Yavapai counties.
Nichol Turk's head cactus	<i>Echinocactus horizonthalonius var. nicholii</i>	Endangered	Blue-green to yellowish-green, columnar, 18 inches tall, 8 inches in diameter. Spine clusters have 5 radial and 3 central spines; one downward short; 2 spines upward and red or vasally gray. Flower: pink fruit: woolly white.	Pima, Pinal	2400-4100 ft	Sonoran desertscrub.	Found in unshaded microsites in Sonoran desertscrub on dissected alluvial fans at the foot of limestone mountains and on inclined terraces and saddles on limestone mountain sides.
Ocelot	<i>Leopardus (=Felis) pardalis</i>	Endangered	Medium-sized spotted cat whose tail is about 1/2 the length of head and body. Yellowish with black streaks and stripes running from front to back. Tail is spotted and face is less heavily streaked than the back and sides.	Cochise, Pima, Santa Cruz	< 8000 ft	Humid tropical and sub-tropical forests, savannahs, and semi-arid thornscrub.	May persist in partly-cleared forests, second-growth woodland, and abandoned cultivated areas reverted to brush. Universal component is presence of dense cover. Unconfirmed reports of individuals in the southern part of the State continue to be received.

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Pima pineapple cactus	<i>Coryphantha scheeri</i> var. <i>robustispina</i>	Endangered	Hemispherical stems 4-7 inches tall 3-4 inches diameter. Central spine 1 inch long straw colored hooked surrounded by 6-15 radial spines. Flower: yellow, salmon, or rarely white narrow floral tube..	Pima, Santa Cruz	2300-5000 ft	Sonoran desertscrub or semi-desert grassland communities.	Occurs in alluvial valleys or on hillsides in rocky to sandy or silty soils. This species can be confused with juvenile barrel cactus (<i>Ferocactus</i>). However, the spines of the later are flattened, in contrast with the round cross-section of the <i>Coryphantha</i> spines. 80-90% of individuals on state or private land.
Sonoran pronghorn	<i>Antilocapra americana sonoriensis</i>	Endangered	Buff on back and white below, hoofed with slightly curved black horns having a single prong. Smallest and palest of the pronghorn subspecies	Maricopa, Pima, Yuma	500 - 2,000 ft	Broad intermountain alluvial valleys with creosote-bursage and palo verde-mixed cacti associations.	Typically, bajadas are used as fawning areas and sandy dune areas provide food seasonally. Historical range was probably larger than exists today. This subspecies also occurs in Mexico.
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Endangered	Small passerine (about 6 inches) grayish-green back and wings, whitish throat, light olive-gray breast and pale yellowish belly. Two wingbars visible. Eye-ring faint or absent.	Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai, Yuma	<8500 ft	Cottonwood/willow and tamarisk vegetation communities along rivers and streams.	Migratory riparian-obligate species that occupies breeding habitat from late April to September. Distribution within its range is restricted to riparian corridors. Difficult to distinguish from other members of the <i>Empidonax</i> complex by sight alone. Training seminar required for those conducting flycatcher surveys. Critical habitat was finalized on October 19, 2005 (50 CFR 60886) and can be viewed at http://arizonaes.fws.gov . In Arizona there are critical habitat segments in Apache, Cochise, Gila, Graham, Greenlee, Maricopa, Mohave, Pima, Pinal, and Yavapai counties.
Acuna cactus	<i>Echinomastus erectocentrus</i> var. <i>acunensis</i>	Candidate	<12 inches high; spine clusters borne on tubercles, each with a groove on the upper surface. 2-3 central spines and 12 radial spines. Flowers pink to purple.	Pima, Pinal	1300-2000 ft	Well drained knolls and gravel ridges in Sonoran desertscrub.	Immature plants distinctly different from mature plants. They are disc-shaped or spherical and have no central spines until they are about 1.5 inches. Radial spines are dirty white with maroon tips.
Sonoyta mud turtle	<i>Kinosternon sonoriense longifemorale</i>	Candidate	Primarily a pond turtle, prefers mud or sandy bottoms. Body 3 1/2 to 6 1/2 inches. Head and neck mottled with contrasting light and dark markings. Found in Quitobaquito Springs.	Pima	1,100 ft	Ponds and streams.	Species also found in Rio Sonoyta, Sonora, Mexico.

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Candidate	Medium-sized bird with a slender, long-tailed profile, slightly down-curved bill, which is blue-black with yellow on the lower half of the bill. Plumage is grayish-brown above and white below, with rufous primary flight feathers.	Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai, Yuma	< 6,500 ft	Large blocks of riparain woodlands (cottonwood, willow, or tamarisk galleries).	Listing was found warranted, but precluded as a distinct vertebrate population segment in the western U.S. on July 25, 2001. This finding indicates that the Service has sufficient information to list the bird, but other, higher priority listing actions prevent the Service from addressing the listing of the cuckoo at this time.
Gooddings onion	<i>Allium gooddingii</i>	Conservation Agreement	Herbaceous perennial plant; broad, flat, rather blunt leaves; flowering stalk 14-17 inches tall, flattened, and narrowly winged toward apex; fruit is broader than long; seeds are short and thick.	Apache, Greenlee, Pima	> 7,500 ft	Forested drainage bottoms and on moist north facing slopes of mixed conifer and spruce fir forests.	Conservation agreement between the Service and the Forest Service signed in February 1998. In New Mexico on the Lincoln and Gila National Forests.
San Xavier talussnail	<i>Sonorella eremita</i>	Conservation Agreement	Land snail, less than one inch in diameter (about .75 inches), 4.5 whorls, round shell, white to pinkish tint.	Pima	3,850-3,920 ft	Deep, limestone rockslide with outcrops of limestone and decomposed granite.	Conservation agreement signed by the Service, Arizona Game and Fish Department, El Paso Natural Gas Company, and Arizona Electric Power Cooperative, Inc. in September 1998.

**Special Status Species Documented within 5 Miles of the US/Mexico Border in the Organ
Pipe Cactus National Monument**

NAME	COMNAME	ESA	USFS	BLM	STATE
<i>Anthocharis cethura</i>	Felder's Orange Tip		S		
<i>Antilocapra americana sonoriensis</i>	Sonoran Pronghorn	LE	S		WSC
<i>Aspidoscelis burti xanthonota</i>	Red-back Whiptail	SC	S		
<i>Charina trivirgata trivirgata</i>	Mexican Rosy Boa	SC		S	
<i>Chionactis palarostris organica</i>	Organ Pipe Shovel-nosed Snake		S		
<i>Coccyzus americanus occidentalis</i>	Western Yellow-billed Cuckoo	C	S		WSC
<i>Cyprinodon eremus</i>	Quitobaquito Desert Pupfish	LE			WSC
<i>Echinomastus erectocentrus</i> var. <i>acunensis</i>	Acuna Cactus	C			HS
<i>Eumops perotis californicus</i>	Greater Western Bonneted Bat	SC			
<i>Eumops underwoodi</i>	Underwood's Bonneted Bat	SC		S	
<i>Ferocactus emoryi</i>	Emory's Barrel-cactus				SR
<i>Gastrophryne olivacea</i>	Great Plains Narrow-mouthed Toad				WSC
<i>Glaucidium brasilianum cactorum</i>	Cactus Ferruginous Pygmy-owl	SC			WSC
<i>Gopherus agassizii</i> (Sonoran Population)	Sonoran Desert Tortoise	SC			WSC
<i>Kinosternon sonoriense longifemorale</i>	Sonoyta Mud Turtle	C	S		
<i>Leptonycteris curasoae yerbabuenae</i>	Lesser Long-nosed Bat	LE	S		WSC
<i>Lophocereus schottii</i>	Senita				SR
<i>Macrotus californicus</i>	California Leaf-nosed Bat	SC			WSC
<i>Mammillaria thornberi</i>	Thornber Fishhook Cactus				SR
<i>Myotis velifer</i>	Cave Myotis	SC		S	
<i>Nyctinomops femorosaccus</i>	Pocketed Free-tailed Bat			S	
<i>Peniocereus striatus</i>	Dahlia Rooted Cereus				SR
<i>Phyllorhynchus browni lucidus</i>	Maricopa Leaf-nosed Snake		S		
<i>Rallus longirostris yumanensis</i>	Yuma Clapper Rail	LE			WSC
<i>Stenocereus thurberi</i>	Organ Pipe Cactus				SR
<i>Tryonia quitobaquitae</i>	Quitobaquito Tryonia	SC	S		
<i>Tumamoca macdougalii</i>	Tumamoc Globeberry		S	S	SR
<i>Tyrannus melancholicus</i>	Tropical Kingbird				WSC

Designated Critical Habitat for the Quitobaquito Desert Pupfish within project area.

Arizona Game and Fish Department, Heritage Data Management System, May 7, 2007.

APPENDIX C
Correspondence

United States Department of the Interior
U.S. Fish and Wildlife Service
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
Telephone: (602) 242-0210 FAX: (602) 242-2513

In Reply Refer To:
AESO/SE
22410-2008-F-0011

February 11, 2008

Mr. George Hutchinson
U.S. Department of Homeland Security
Customs and Border Protection
1300 Pennsylvania Avenue NW
Room 3.4-D
Washington, D.C. 20229

RE: Biological Opinion for the Proposed Installation of 5.2 Miles of Primary Fence near
Lukeville, Arizona

Dear Mr. Hutchinson:

Thank you for your request for formal consultation with the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). You requested initiation of formal consultation on September 17, 2007. At issue are impacts that may result from your proposed primary fence project on Organ Pipe Cactus National Monument in Pima County, Arizona. The proposed action may affect Sonoran pronghorn (*Antilocapra americana sonoriensis*) and lesser long-nosed bats (*Leptonycteris curasoae yerbabuenae*).

This biological opinion is based on information provided in the "Final Environmental Assessment for the Proposed Installation of 5.2 Miles of Primary Fence near Lukeville, Arizona - U.S. Border Patrol, Tucson Sector, November 2007" (EA) and other sources of information as described in the consultation history. Literature cited in this biological opinion is not a complete bibliography of all literature available on the species of concern; primary fence installation and maintenance activities and their effects; road improvement and maintenance activities and their effects; or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at the Phoenix, Arizona, Ecological Services Office (AESO).

CONSULTATION HISTORY

- June 11, 2007: We received your¹ June 4, 2007, request for information on threatened or endangered species, or those that are proposed to be listed as such under the Endangered Species Act of 1973, as amended (Act), which may occur in your proposed project area.
- July 10, 2007: We sent you a letter that included the aforementioned information you requested as well as other recommendations to consider during the preparation of your Environmental Assessment for the project.
- September 17, 2007: We received your “Draft Environmental Assessment for the Proposed Installation of 5.2 Miles of Primary Fence near Lukeville, Arizona - U.S. Border Patrol, Tucson Sector, September 2007” and August 14, 2007, letter requesting our concurrence that the Installation of 5.2 Miles of Primary Fence near Lukeville, Border Patrol (BP) Tucson Sector Project, Pima County, Arizona (proposed project), may affect, but is not likely to adversely affect, the federally endangered lesser long-nosed bat and will have no effect on the endangered Sonoran pronghorn.
- October 9, 2007: We held a conference call with Chris Ingram and Josh McEnany of Gulf South Research Corporation (GSRC) to discuss the project’s effects on the Sonoran pronghorn and lesser long-nosed bat. During the call, GSRC revised the determination and concluded that the project may result in adverse effects to both species and that formal section 7 consultation is warranted.
- October 12, 2007: We received your electronic mail confirming the aforementioned revision.
- October 19, 2007: We sent you a letter initiating formal consultation. This letter also included a request for information needed to complete our Biological Opinion.
- December 3, 2007: We received an electronic mail from GSRC with the Final EA attached.
- December 19, 2007: We received your electronic mail inquiring about the status of our Draft BO and informing us that the Final EA was submitted to our office. In a separate electronic mail you stated that the Final EA addressed all requests in our October 19, 2007, letter. We sent you an electronic mail stating that the Final EA did not address all of our requests, but that it contained enough information to start working on the Biological Opinion. A conference call was scheduled for January 8, 2008, to discuss outstanding information needs.
- January 8 to February 5, 2007: We had numerous conference calls to discuss outstanding concerns and information needs regarding your project. During these calls we agreed to a

¹ For the purposes of this biological opinion, “your” and “you” means either Customs and Border Protection or the Army Corps of Engineers.

number of conservation measures that are now incorporated into the “Description of the Proposed Action” of this biological opinion.

- February 6, 2008: We received your electronic mail providing the conservation measures that CBP will implement as part of this project.
- February 6, 2008: We sent you our draft biological opinion for the project.

BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

U.S. Customs and Border Protection (CBP) and U.S. Border Patrol (USBP) propose to construct and maintain 5.2 miles of primary fence along the U.S.-Mexico border near Lukeville, Arizona to help agents and officers gain effective control of the border. The proposed action, summarized below, is described in detail in the “Final Environmental Assessment for the Proposed Installation of 5.2 Miles of Primary Fence near Lukeville, Arizona - U.S. Border Patrol, Tucson Sector, November 2007” (EA), as well as electronic mail correspondence from Army Corps of Engineers (ACOE) and GSRC to FWS, and notes from conference calls with CBP, ACOE, and GSRC. The project corridor (Figure 1) is within the Organ Pipe Cactus National Monument (OPCNM) and encompasses 5.2 linear miles of the U.S. - Mexico border, including 3.1 miles to the east and 2.1 miles to the west of the Lukeville Port of Entry (POE); the project area is described in the Final EA.

Approximately 4.55 miles of primary fence will be installed approximately 6 feet north of the U.S.-Mexico border on either side of the Lukeville POE and 3 feet north of the existing Permanent Vehicle Barriers (PVBs). Approximately 0.65 mile of primary fence over Sonoyta Hill (also known as Monument Hill) will be installed 3 feet north of the U.S.-Mexico border. Construction activities associated with the installation of 4.55 miles of fence will occur entirely within the 60-foot Roosevelt Reservation² (RR); construction of the 0.65 mile of fence will require a footprint of 150 feet, 90 feet beyond the RR.

The fence will be made of 9-gauge mesh and though the final design will be developed by the design/build contractor, at a minimum, it must extend 15 feet above ground and three to six feet below ground; not impede the natural flow of water; and result only in minimal impacts on small animal movements (see EA for a complete list of minimum fence requirements). Furthermore, in most washes or arroyos, the fence will be designed and constructed to ensure proper conveyance

² The 60-foot wide Roosevelt Reservation along the border was set aside from public use, with the exception of public highways, as a protection against the smuggling of goods between the U.S. and Mexico by Presidential Proclamation in 1907 by President Theodore Roosevelt. The Roosevelt Reservation includes all lands under Federal ownership in California, Arizona and New Mexico at the time the proclamation was signed, creating a formal border enforcement zone between the U.S. and Mexico (International Boundary Commission 1936).

of floodwaters and to eliminate the potential to cause backwater flooding on either side of the U.S.-Mexico border. During rain events the USBP will be responsible for ensuring that debris does not become wedged against the fence creating backwater flooding.

An existing patrol road that parallels the border for 4.55 miles of the project corridor will be used for access during construction and subsequent maintenance of most of the fence (no improvement to this portion of the road is proposed). To install and maintain primary fence over Sonoyta Hill, west of the Lukeville POE, a new road will be constructed. The existing South Puerto Blanco Road will be used for construction access and maintenance of the Sonoyta Hill portion of the fence. Staging areas and turnarounds for the project will be located in previously disturbed areas, within the RR, to minimize potential effects to the environment. Between 5.2 and 11.4 acre-feet (1.7 to 3.7 million gallons) of water for fence and road construction-related activities will be required. All water will be trucked into the project site from sources north of the OPCNM (i.e., Why, Ajo, or Gila Bend).

A total of about 45 acres (12 acres within the 150-foot wide footprint [this represents 5 acres within the RR and 7 acres outside of the RR] and 33 acres within the 60-foot wide footprint) will be permanently disturbed. About 17 acres of the total footprint have been previously disturbed from the construction of the existing PVBs. Within the project footprint, up to 206 saguaros and 295 organ pipe cacti will be removed or salvaged (85 percent of these occur within the 0.65-mile project corridor over Sonoyta Hill).

The road and fence will be maintained by the USBP on an as-needed basis to ensure the integrity of the road and fence is not compromised. All project personnel will not exceed a speed limit of 25 miles per hour within OPCNM during construction and maintenance related activities (excluding travel on Highway 85). The number of vehicles traveling to and from the project site and the number of trips per day will be minimized to reduce the likelihood of disturbing pronghorn in the area or injuring an animal on the road. The project is expected to be completed by December 2008. Nighttime construction is not anticipated, however, it may occur.

CBP anticipates that the fence will facilitate increased border control within the 5.2-mile project corridor. Therefore, the enforcement resources once used for security in that area will be more available to respond to illegal activity on either side of the fence. Furthermore, CBP aims to interdict illegal activity as close to the border as possible.

Conservation Measures

To reduce impacts to the environment, CBP and their representatives (i.e., ACOE, contractors, and consultants) will implement a number of Environmental Design and Conservation Measures, including: 1) demarcate the project area to be impacted before construction begins; 2) implement a Stormwater Pollution Prevention Plan (SWPPP), including pre- and post-construction Best Management Practices (BMPs) identified in the SWPPP; 3) implement erosion

control techniques; 4) construct the fence in arroyos in a way that ensures proper conveyance of floodwaters and that eliminates the potential for backwater flooding on either side of the U.S.-Mexico border; 5) remove debris from the fence immediately after rain events to ensure that no backwater flooding occurs; 6) comply with the Migratory Bird Treaty Act; 7) check all construction-related holes and trenches on a daily-basis and immediately remove and relocate all animals that have fallen in the holes and trenches away from the site (>100 feet) (checking may be done by anyone on-site; however, removal of animals will be done by a qualified biologist); and 8) clean construction equipment prior to entering OPCNM to minimize the spread and establishment of non-native and invasive species. A biological monitor will be on-site daily to ensure project compliance (i.e., ensure contractors are staying within the demarcated impact area; move animals, such as desert tortoise, out of the project corridor; etc.). When contractors are working on the western slope of Sonoyta Hill, the biological monitor will conduct surveys for Sonoran pronghorn as close to dawn as possible. If Sonoran pronghorn are detected within 0.62 mile of project activities, no project work will begin until pronghorn move on their own volition to a distance greater than 0.62 mile from the activities. All contractors, work crews (including National Guard and military personnel), and CBP personnel in the field performing construction and maintenance activities would receive training on the habitat and habits of species found in the project area, including information on how to avoid impacts to the species from their activities.

To help offset impacts to lesser long-nosed bat foraging habitat and other natural resources, CBP and their representatives will (or provide funding for): 1) in close coordination with OPCNM, salvage all columnar cacti less than three feet tall to the extent practicable (approximately 74 saguaro and 68 organ pipe cacti³) and attempt to salvage columnar cacti between three and six feet (approximately 41 saguaro and 55 organ pipe cacti³) that face danger of destruction within the project corridor as determined by the biological monitor and that have been identified using GPS-technology (either by GSRC or OPCNM), as well as about 20 barrel cacti; 2) transport the salvaged cacti to an area, likely the OPCNM nursery, where they will be temporarily planted in prepared beds; 3) care for them until they are ready to be replanted; and 4) replant (water and monitor) them in areas to be restored within OPCNM (as identified in the restoration plan-see below). The contractor responsible for constructing the fence will also be responsible for cactus salvage and transportation, as well as care until funds become available through the programmatic mitigation agreement (explained below). Non-salvageable plants destroyed in the project corridor and not needed for on-site erosion control or restoration, as determined by an erosion-control/restoration specialist and OPCNM staff, will be hauled away to an appropriate disposal site outside of OPCNM.

³ During a recent survey (February 2008), OPCNM staff counted a total of 140 salvageable saguaros and 112 salvageable organ pipe cacti. These numbers differ from those provided by GSRC; however, regardless of the exact number, all saguaros and organ pipe determined to be salvageable within the project footprint will be salvaged.

To help offset impacts to lesser long-nosed bats, Sonoran pronghorn, and other natural resources CBP will provide funding in the amount of \$955,000.00⁴ to restore 84 acres (to be identified by OPCNM personnel) within OPCNM, including illegal roads and trails within the Monument. We anticipate that about 60 percent of the restoration will benefit the conservation of the lesser long-nosed bat and about 40 percent will benefit the Sonoran pronghorn. A restoration plan will be developed and implemented by a qualified Sonoran Desert restoration specialist, in close coordination with OPCNM. Development of the plan will be the responsibility of the fence contractor, however, implementation of it will be the responsibility of DOI. The plan will be completed within 6 months of the issuance of the biological opinion and, among other components, will include replanting, watering as needed, and monitoring the success of salvaged cacti; eradication of non-native invasive species; and general maintenance and monitoring of the restoration areas for 5 years. No restoration will occur within the project footprint, as the area will be needed for future CBP operations; however, non-native invasive plants will be monitored and controlled in the area for three years.

To aid in the conservation and recovery of pronghorn and to help offset potential impacts to pronghorn that may occur as a result of this project, the CBP will provide funding to the FWS to fill a Sonoran pronghorn water for 10 years at a cost per year of \$2,500.00 (for a total of \$25,000).

The aforementioned funding (\$955,000 and \$25,000) will be incorporated within a programmatic mitigation agreement between Department of Homeland Security/CBP and Department of the Interior (DOI)/FWS. Once funding is provided to DOI through this agreement, DOI will be responsible for implementing the restoration plan and filling the Sonoran pronghorn water.

SONORAN PRONGHORN STATUS OF THE SPECIES

A. Description, Legal Status, and Recovery Planning

The Sonoran subspecies of pronghorn (*Antilocapra americana sonoriensis*) was first described by Goldman (1945) and is the smallest of the five subspecies of pronghorn (Nowak and Paradiso 1983). The subspecies was listed throughout its range as endangered on March 11, 1967 (32 FR 4001) under the Endangered Species Preservation Act of October 15, 1966 without critical habitat. Three sub-populations of the Sonoran pronghorn are extant: 1) a U.S. sub-population in southwestern Arizona, 2) a sub-population in the Pinacate Region of northwestern Sonora, and 3) a sub-population on the Gulf of California west and north of Caborca, Sonora. The three sub-populations are geographically isolated due to barriers such as roads and fences, and in the case of the two Sonora sub-populations, by distance.

⁴ These funds will also be used to pay for the care of salvaged cactus at the temporary holding facility until they are ready to be replanted. If the salvage occurs before the funds are available, the salvaged cactus will be cared for by CBP or their representatives until the funds become available.

The 1982 Sonoran Pronghorn Recovery Plan (U.S. Fish and Wildlife Service 1982) was revised in 1998 (U.S. Fish and Wildlife Service 1998). The recovery criteria presented in the revised plan entailed the establishment of a population of 300 adult pronghorn in one self-sustaining population for a minimum of five years, as well as the establishment of at least one other self-sustaining population in the U.S. to reclassify the subspecies to threatened. Actions identified as necessary to achieve these goals include the following: 1) enhance present sub-populations of pronghorn by providing supplemental forage and/or water; 2) determine habitat needs and protect present range; 3) investigate and address potential barriers to expansion of presently used range and investigate, evaluate, and prioritize present and potential future reintroduction sites within historical range; 4) establish and monitor a new, separate herd(s) to guard against catastrophes decimating the core population, and investigate captive breeding; 5) continue monitoring sub-populations and maintain a protocol for a repeatable and comparable survey technique; and 6) examine additional specimen evidence available to assist in verification of taxonomic status. In 2001 a supplement and amendment to the 1998 Final Revised Sonoran Pronghorn Recovery Plan was prepared (U.S. Fish and Wildlife Service 2001). We concluded that data do not yet exist to support establishing delisting criteria. Tasks necessary to accomplish reclassification to threatened status (as outlined in the 1998 plan) should provide the information necessary to determine if and when delisting will be possible and what the criteria should be.

B. Life History and Habitat

Sonoran pronghorn inhabit one of the hottest and driest portions of the Sonoran Desert. They forage on a large variety of perennial and annual plant species (Hughes and Smith 1990, Hervert *et al.* 1997b, U.S. Fish and Wildlife Service 1998). During drought years, Hughes and Smith (1990) reported cacti were the major dietary component (44 percent). Consumption of cacti, especially chain fruit cholla (*Cylindropuntia fulgida*, Pinkava 1999), provides a source of water during hot, dry conditions (Hervert *et al.* 1997b). Other important plant species in the diet of the pronghorn include pigweed (*Amaranthus palmeri*), ragweed (*Ambrosia* sp.), locoweed (*Astragalus* sp.), brome (*Bromus* sp.), and snakeweed (*Gutierrezia sarothrae*) (U.S. Fish and Wildlife Service 1998). Pronghorn will move in response to spatial limitations in forage availability (Hervert *et al.* 1997a). Water intake from forage is not adequate to meet minimum water requirements (Fox *et al.* 2000), hence pronghorn need and readily use both natural and artificial water sources (Morgart *et al.* 2005).

Sonoran pronghorn rut during July-September, and does have been observed with newborn fawns from February through May. Parturition corresponds with annual spring forage abundance. Fawning areas have been documented in the Mohawk Dunes and the bajadas of the Sierra Pinta, Mohawk, Bates, Growler, and Puerto Blanco mountains. Does usually have twins, and fawns suckle for about 2 months. Does gather with fawns, and fawns sometimes form nursery groups (U.S. Fish and Wildlife Service 1998). Sonoran pronghorn form small herds of up to 21 animals (Wright and deVos 1986).

Telemetry locations of 35 Sonoran pronghorn demonstrated that during 1995-2002, pronghorn used creosote/bursage and palo verde/mixed cactus vegetation associations less than expected or equal to availability. Pronghorn use of palo verde/chain fruit cholla associations and desert washes occurred more than expected. However, during the cool and wet winter on 1997-1998, pronghorn were found in creosote/bursage associations more than expected (Hervert *et al.* 2005). In contrast, during 1983-1991, pronghorn used creosote/bursage and palo verde mixed cacti associations more than expected (deVos and Miller 2005). Differences between these study results may be due in part to differences in precipitation and forage patterns between these periods. The earlier period was wetter with greater forage availability in flats and valleys where creosote/bursage associations predominate. In wet winters and early spring pronghorn are often found in flats and valleys, such as Pinta Sands, the Mohawk Dunes west of the Mohawk Mountains, and the west side of the Aguila Mountains. In late spring and summer, pronghorn then move from the flats and valleys upslope into bajadas and often south or southeast where palo verde associations, chain fruit cholla, and washes are more common. Movements are most likely motivated by the need for thermal cover provided by leguminous trees and water available in succulent chain fruit cholla (Hervert *et al.* 1997b). Home range size of Sonoran pronghorn during 1995-2002 ranged from 16.6 to 1,109 mi², with an average of 197 ± 257 mi² (Hervert *et al.* 2005).

From 1995-2002, adult mortality rates varied from 11-83%. Adults were killed by coyotes, bobcats, mountain lions, capturing efforts, drought, and unknown causes (Bright and Hervert 2005). However, during 1983-1991, apparently a more favorable period for pronghorn during which the population grew significantly, mean annual survival of females and males was $96\% \pm 0.04$ and $92\% \pm 0.04$ (DeVos and Miller 2005). Disease may affect mortality, but has not been thoroughly investigated (Bright and Hervert 2005). Hervert *et al.* (2000) found that the number of fawns surviving until the first summer rains was significantly correlated to the amount of preceding winter rainfall, and negatively correlated to the number of days without rain between the last winter rain and the first summer rain. Drought may be a major factor in the survival of adults and fawns (Bright and Hervert 2005). Three radio-collared pronghorn died in July and August of 2002 with no obvious cause of death. Given that 2002 was one of the driest years on record, the proximate cause of these mortalities was likely heat stress and/or malnutrition resulting from inadequate forage conditions due to drought.

C. Distribution and Abundance

United States

Historically, the Sonoran pronghorn ranged in the U.S. from approximately the Santa Cruz River in the east, to the Gila Bend and Kofa Mountains to the north, and to Imperial Valley, California, to the west (Mearns 1907, Nelson 1925, Monson 1968, Wright and deVos 1986, Paradiso and Nowak 1971; Figure 2). Bright *et al.* (2001) defined the present U.S. range of the Sonoran pronghorn as bordered by Interstate 8 to the north, the International Border to the south, the Copper and Cabeza mountains to the west, and SR 85 to the east (see Figure 3). This area encompasses 2,508 mi² (Bright *et al.* 2001).

While Mearns (1907) suggested that pronghorn may have been common in some areas in the late 1800s, evidence suggests that the sub-population declined dramatically in the early 20th century. Sub-population estimates for Arizona, which only began in 1925, have never shown the pronghorn to be abundant (Table 1). Repeatable, systematic surveys were not conducted in Arizona until 1992. Since 1992, Sonoran pronghorn in the United States have been surveyed biennially (Bright *et al.* 1999, 2001) using aerial line transects (Johnson *et al.* 1991). Sub-population estimates from these transects have been derived using three different estimators (Table 2); currently the sightability model (Samuel and Pollock 1981) is considered the most reliable estimator (Bright *et al.* 1999, 2001). Table 2 presents observation data from transects and compares estimates derived from the three population models from 1992 through 2006.

The sightability model population estimates from 1992 to 2000 showed a 45 percent decrease in sub-population size (Table 2). The estimates indicate a steady decline in sub-population size, with the exception of the 1994 survey. The 1994 estimate may be somewhat inflated due to inconsistencies in survey timing (U.S. Fish and Wildlife Service 1998, Bright *et al.* 2001). High fawn mortality in 1995 and 1996 and the death of half (8 of 16) of the adult, radio-collared pronghorn during the 13 months preceding the December 1996 survey corresponded to five consecutive six-month seasons of below normal precipitation (summer 1994 through summer 1996) throughout most of the Sonoran pronghorn range, which likely contributed, in part, to observed mortality (Bright *et al.* 2001, Hervert *et al.* 1997b).

Mortality of Sonoran pronghorn in 2002 was exceptionally high (Bright and Hervert 2005). At the start of the year, seven radio-collared Sonoran pronghorn were at large in the U.S. sub-population. By December 2002, all but one of these had died. For most, drought stress was considered to be the proximate cause. For those animals that may have succumbed to predation, it was suspected that drought stress was again a factor, by making the animal more vulnerable to predation, due to an emaciated physical condition and being forced into predator habitats by drought. The 2002 drought was one of the driest on record. As an example, annual rainfall at the OPCNM visitor center was only 2.54 inches in 2002 (T. Tibbitts, Organ Pipe Cactus NM, pers. comm. 2002); *average* annual rainfall for the visitor center is 9.2 inches (Brown 1982). The November/December 2002 population survey revealed the U.S. sub-population had declined to the lowest level ever recorded. A total of 18 pronghorn were observed, in three groups (8, 9, and 1). The sightability model resulted in a population estimate of 21 animals, or a 79% decline from 2000. Also, very few fawns survived in 2002 to replace these dying adults.

Although drought was likely the proximate cause of the dramatic decline of the U.S. sub-population in 2002, anthropogenic factors almost certainly contributed to or exacerbated the effects of the drought. Historically, pronghorn likely moved to wetted areas and foraged along the Rio Sonoyta, Sonora, and the Gila and probably Colorado rivers during drought. These areas are no longer accessible to the U.S. population due to fences, Interstate 8, Mexico Highway 2, and other barriers. The rate of decline in the U.S. sub-population from 2000-2002 (79 percent) was also much greater than that observed in either the sub-population southeast of Highway 8 (18 percent decline) or the El Pinacate sub-population (26 percent) during the same period (see discussion of Mexican sub-populations in the next section). Observations of forage availability

suggest the El Pinacate sub-population experienced the same severe drought that occurred on the Arizona side (T. Tibbitts, J. Morgart, pers. comm. 2003). Yet that sub-population fared much better than its U.S. counterpart. The high level of human activities and disturbance on the U.S. side, particularly in regard to undocumented alien traffic, smugglers, and required law enforcement response, as compared to what occurs in the El Pinacate area, is a likely contributing factor in the differing rates of decline observed north and south of the border. See the section entitled "Drought" in the Environmental Baseline and "Cumulative Effects" for further discussion.

The December 2004 survey resulted in an estimated 58 wild pronghorn in the U.S. sub-population, a substantial increase brought on by favorable conditions since 2002. Based on casual surveys and estimated fawn survival, the population in 2005 was roughly 75 wild pronghorn. Based on a December 2006 aerial survey, the U.S. sub-population was estimated at 68 (Table 2). Based, again, on casual surveys as well as aerial tracking of ten telemetered pronghorn, the 2007 wild population is now estimated at about 70.

Semi-captive breeding facility

As part of a comprehensive emergency recovery program, adult pronghorn were first captured and placed into a semi-captive breeding facility at CPNWR in 2004. There are currently (as of January 2008) 37 pronghorn in the enclosure. Two yearling bucks were released from the pen into the wild herd in November 2006, and another two were released in January 2007. The objective is to produce 10-25 fawns each year to be released into the U.S. sub-population, and potentially to establish a second U.S. sub-population at Kofa NWR. Planning for the second herd is underway. Various alternatives are being considered, but a second herd could be established in King Valley of Kofa NWR within five years. A captive facility with a forage enhancement plot, and development of waters in King Valley would likely be needed. The population would probably be introduced as an experimental, nonessential population under section 10(j) of the Act.

Mexico

Historically, Sonoran pronghorn ranged in Sonora from the Arizona border south to Hermosillo and Kino Bay, west to at least the Sierra del Rosario, and east to the area south of the Baboquivari Valley on the Tohono O'odham Nation (Nelson 1925, Carr 1974, Monson 1968). The distribution in Baja California Norte is less clear, but observations by Mearns (1907) indicate they occurred in the Colorado Desert west of the Colorado River, as well. Sonoran pronghorn are currently extant in two sub-populations in Mexico, including: (1) Pinacate sub-population west of Highway 8 near the Pinacate Lava flow; and (2) north and west of Caborca and southeast of Highway 8.

Sub-populations of Sonoran pronghorn in Sonora had not been thoroughly surveyed until the December 2000 surveys (Bright *et al.* 2001), at which time 346 pronghorn were estimated to occur in Sonora. Although the 1993 estimate was approximate, survey results suggested a decline in the sub-populations of 16 percent from 1993 to 2000 (Table 3). The two Mexico sub-populations were resurveyed in December 2002. A grand total (both El Pinacate and southeast

of Highway 8) of 214 pronghorn in 32 groups were seen for a tentative population estimate of 280, indicating further decline. Only 19 pronghorn were observed in the Pinacate area for an estimate of 25, which is a decline of 26% from the 2000 estimate. Surveys conducted in December 2004 and February 2005 demonstrated that the population southeast of Highway 8 increased to 625 (439 observed), while the Pinacate population increased to 59 (30 observed). In January 2006, surveys indicated that pronghorn numbers are remaining steady with an estimated total of 634 (486 observed) individuals (combined for both populations). Nine of these were captured, of which five were fitted with radio-collars and released and four were transferred to the semi-captive breeding facility in the U.S.

Population Viability Analysis

In 1996, a workshop was held in which a population viability analysis (PVA) was conducted for the U.S. sub-population of Sonoran pronghorn (Defenders of Wildlife 1998). A PVA is a structured, systematic, and comprehensive examination of the interacting factors that place a population or species at risk (Gilpin and Soulé 1986). Based on the best estimates of demographic parameters at the time, the likelihood of extinction of Sonoran pronghorn was calculated as one percent in the next 25 years, nine percent in the next 50 years, and 23 percent in the next 100 years. More severe threats include population fluctuation, periodic decimation during drought (especially of fawns), small present population size, limited habitat preventing expansion to a more secure population size, and expected future inbreeding depression. At populations of less than 100, population viability declined at an increasingly steep rate. To maintain genetic diversity over the long term, a population of at least 500 is desirable (Defenders of Wildlife 1998). The likelihood of extinction increased markedly when fawn mortality exceeded 70 percent. Thus, a 30 percent fawn crop (30 fawns/100 does) each year is necessary to ensure the continuance of the U.S. sub-population. The authors concluded that “this population of the Sonoran pronghorn, the only one in the U.S., is at serious risk of extinction.” The authors made these conclusions prior to the severe drought and decline in the species in 2002. On the other hand, Hosack *et al.* (2002) found that some management actions were possible that could improve the chances of population persistence significantly. Actions that would ameliorate the effects of drought or minimize mortality of pronghorn were of particular importance for improving population persistence.

E. Threats

Barriers that Limit Distribution and Movement

Highways, fences, railroads, developed areas, and irrigation canals can block access to essential forage or water resources. Highways 2 and 8 in Sonora, and SR 85 between Gila Bend and Lukeville, Arizona support a considerable amount of fast-moving vehicular traffic, and are fenced in some areas, and are likely a substantial barrier to Sonoran pronghorn. Interstate 8, the Wellton-Mohawk Canal, agriculture, a railroad, and associated fences and human disturbance near the Gila River act as barriers for northward movement of pronghorn. De-watering of reaches of the Río Sonoyta and lower Gila River, and barriers to pronghorn accessing the Gila River, such as Interstate 8 and the Wellton-Mohawk Canal, have caused significant loss of habitat and loss of access to water (Wright and deVos 1986). Agricultural, urban, and

commercial development at Sonoyta, Puerto Peñasco, and San Luis Río Colorado, Sonora; in the Mexicali Valley, Baja California Norte; and at Ajo, Yuma, and along the Gila River, Arizona, have further removed habitat and created barriers to movement.

Human-caused Disturbance

A variety of human activities occur throughout the range of the pronghorn that have the potential to disturb pronghorn or its habitat, including livestock grazing in the U.S. and Mexico; military activities; recreation; poaching and hunting; clearing of desert scrub and planting of buffelgrass (*Pennisetum ciliare*) in Sonora; gold mining southeast of Sonoyta, dewatering and development along the Gila River and Río Sonoyta; increasing undocumented immigration and drug trafficking across the international border and associated required law enforcement response; and roads, fences, canals, and other artificial barriers.

Studies of captive pronghorn, other than the Sonoran subspecies, have shown that they are sensitive to disturbance such as human presence and vehicular noise. Human traffic, such as a person walking or running past pronghorn in an enclosed pen, a motorcycle driving past, a truck driving past, a truck blowing its horn while driving past, or a person entering a holding pen, caused an increased heart-rate response in American pronghorn in half-acre holding pens (Workman *et al.* 1992). The highest heart rates occurred in female pronghorn in response to a person entering a holding pen, or a truck driving past while sounding the horn. The lowest heart rates occurred when a motorcycle or truck was driven past their pen. Pronghorn were more sensitive to helicopters, particularly those flying at low levels or hovering, than fixed wing aircraft. Other investigators have shown that heart rate increases in response to auditory or visual disturbance in the absence of overt behavioral changes (Thompson *et al.* 1968, Cherkovich and Tatoyan 1973, Moen *et al.* 1978). Hughes and Smith (1990) found that pronghorn immediately ran 1,310-1,650 feet from a vehicle. Krausman *et al.* (2001, 2004, 2005a) examined effects of military aircraft and ground-based activities on Sonoran pronghorn at the North and South TACs on the Barry M. Goldwater Range (BMGR) and concluded that military activities, both ground-based and aerial, were associated with some changes in behavior (e.g., from standing to trotting or running, or bedded to standing) but the authors concluded that these changes were not likely to be detrimental to the animals. Sightings of pronghorn were biased towards disturbed habitats on the TACs and other areas of military activities, which also corresponded to areas of favorable ephemeral forage production (Krausman *et al.* 2005a). No conclusions could be drawn about effects of military activities on fawns due to poor fawn productivity during the Krausman *et al.* study. During times of drought, disturbances that cause pronghorns to startle and run would energetically have a more significant effect. Such energetic expenditures, particularly during times of stress, may lead to lower reproductive output and/or survival of individual animals (Geist 1971).

Habitat Disturbance

Livestock grazing has the potential to significantly alter pronghorn habitat and behavior (Leftwich and Simpson 1978, Kindschy *et al.* 1982, Yoakum *et al.* 1996). Overgrazing well into the 19th century by Spaniards and their descendants caused widespread habitat changes throughout much of the Sonoran Desert, particularly in more settled areas such as central Sonora,

Mexico (Sheridan 2000). The effects of cattle grazing are largely historical; cattle were removed from OPCNM, CPNWR, and the BMGR in 1979, 1983, and 1986, respectively (U.S. Fish and Wildlife Service 1998, Rutman 1997). In 2004, the Bureau of Land Management (BLM) closed the Cameron Allotment on the borders of CPNWR and OPCNM, but grazing still occurs in the nearby Childs and Coyote Flat allotments near Ajo. In Sonora, livestock grazing occurs at Pozo Nuevo and at Ejido Puerto Peñasco, but cattle typically stay close to feed and water except in seasons with abundant annual growth when cattle range widely in the Pinacate region.

Mining occurred historically throughout much of the U.S. range of the pronghorn, but is currently not a significant threat to Sonoran pronghorn in the U.S. During recent pronghorn surveys in Mexico, increasing effects from gold mining activities were noted in habitats used by the sub-population located southeast of Highway 8.

Illegal crossings by undocumented immigrants and drug smugglers in the U.S. range of the pronghorn have increased dramatically in recent years. In 2001, estimates of undocumented migrants traffic reached 1,000 per night in OPCNM alone (Organ Pipe Cactus National Monument 2001), and an estimated 150,000 people entered the monument illegally from Mexico (Milstead and Barns 2002). Apprehensions of illegal immigrants and smugglers by the Ajo Station of the Tucson USBP Sector increased from 2837 in 1997 to 6327 in 2005 (personal communication with David BeMiller, February 10, 2006). From October 2005 to February 2006, 6908 apprehensions were made by the Ajo Station (personal communication with David BeMiller, February 10, 2006). The Wellton Station of the Yuma USBP Sector made 2080 apprehensions in fiscal year 2005 and 3339 apprehensions from October 2005 to February 2006 (personal communication with David BeMiller, February 10, 2006). USBP agents have indicated, however, that apprehensions have recently decreased due to USBP presence at Camp Grip (electronic mail from David Guzewich, February 8, 2008). Illegal border-related activities and required USBP response have resulted in widespread habitat degradation and increased human presence in remote areas. For instance, all the valleys at Cabeza Prieta NWR are now criss-crossed with a network of north-south roads and trails, even though those areas are designated as wilderness. Illegal immigrants and smugglers have shifted their activities to more remote areas, including Sonoran pronghorn habitat in southwestern Arizona, as USBP has been able to successfully gain control of more urban areas. There is anecdotal evidence that pronghorn are avoiding areas of high illegal traffic and law enforcement activities (personal communication with Curtis McCasland, CPNWR, 2007).

Fire

The winter and spring of 2004/2005 were very wet, resulting in some of the highest productivity of cool season annual plants in recent memory. As these annual plants dried out, they created fuel for wildfire. In 2005, Mediterranean grass combined with high densities of the native wooly plantain (*Plantago ovata*) and other species created fuels adequate to carry fire. Military training, such as strafing and bombing in the tactical ranges, as well as fires set by illegal immigrants or smugglers, provided the ignition sources. Exact numbers are unknown; however, in 2005 roughly 7,500 acres of pronghorn habitat burned on the CPNWR (personal communication with Curtis McCasland, CPNWR, February 15, 2006) and more than 63,000

acres burned on the BMGR-East during that time. Approximately 29,260 acres of pronghorn habitat were consumed as a result of these fires.

Most Sonoran Desert trees, shrubs, and cacti are poorly adapted to fire (Brown and Minnich 1986, Schwalbe *et al.* 2000, Alford and Brock 2002). If areas burn repeatedly, permanent changes are likely in the flora. Even in the best scenario it is likely to be many years before trees once again provide thermal cover in wash communities and cholla recover to a point that they are useful forage plants for pronghorn. In 2007, pronghorn were attracted to the burned areas, which often supported better growth of annual plants and forbs than adjacent unburned areas. However, in the long term and if these areas continue to burn, removal of thermal cover (trees) and chain fruit cholla, which they depend on in drought, would likely adversely affect pronghorn and probably limit the use of these areas to wetter and cooler periods and seasons.

Drought

As discussed, drought may be a major factor in the survival of adults and fawns (Bright and Hervet 2005), and the major decline in 2002 was driven by drought. Mean annual temperatures rose 2.0-3.1 °F in the American Southwest in the 20th century, and are predicted to rise 8.1-11.0 °F in the 21st century. Most of the observed increases in globally averaged temperatures since the mid-20th century are very likely due to the observed increases in anthropogenic greenhouse gas concentrations (Intergovernmental Panel on Climate Change 2007). In the Sonoran Desert, anthropogenic climate change is causing warming trends in winter and spring, decreased frequency of freezing temperatures, lengthening of the freeze-free season, and increased minimum temperatures in winter, which will likely cause changes in vegetation communities (Weiss and Overpeck 2005). These increases in temperature are predicted to be accompanied by a more arid climate in the Southwest (Seager *et al.* 2007, Intergovernmental Panel on Climate Change 2007). As a result, the Sonoran pronghorn is expected to be confronted with more frequent drought, which increases the importance of recovery actions, such as forage enhancement plots and water developments, which can offset the effects of drought.

Small Population Size and Random Changes in Demographics

At populations of less than 100, population viability declines at an increasingly steep rate. To maintain genetic diversity over the long term, a population of at least 500 is desirable (Defenders of Wildlife 1998). At an estimated 21 in 2002, and roughly 70 wild pronghorn in 2007, the U.S. sub-population is critically endangered and is going through a genetic bottleneck. At an estimated 25 in 2002 and 59 in 2004, the Pinacate sub-population is also well below desired numbers. At 625, the third sub-population (southeast of Highway 8) is marginally large enough to maintain genetic diversity. Loss of the U.S. sub-population would dramatically reduce our ability to manage or recover this subspecies. Populations at low levels may experience random variations in sex ratios, age distributions, and birth and death rates among individuals, which can cause fluctuations in population size and possibly extinction (Richter-Dyn and Goel 1972). In very sparse populations, males may have trouble finding females, reducing productivity (Ehrlich and Roughgarden 1987). Small populations are also sensitive to variations in natural processes, such as drought and predation (Hecht and Nickerson 1999).

Disease

Sonoran pronghorn can potentially be infected by a variety of viral and bacterial diseases. Blood testing has shown pronghorn exposure to these diseases by increases in antibody titers over time. The diseases relevant to pronghorn can be transmitted indirectly through vectors, such as infected midges or ticks, or directly via aerosolized or direct contact of infected fluids or tissues. Diseases that potentially infect pronghorn are all serious diseases of cattle, which can act as vectors. Cattle within the current range of the pronghorn have not been tested for these diseases.

ENVIRONMENTAL BASELINE

The environmental baseline includes past and present impacts of all Federal, state, or private actions in the action area; the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation; and the impact of state and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform from which to assess the effects of the action now under consultation.

A. Action Area

The “action area” means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. Within the U.S. portion of the Sonoran pronghorn’s range, pronghorn interact to form one sub-population in which interbreeding may occur. The U.S. sub-population is effectively separated from sub-populations in the El Pinacate Region and on the Gulf Coast of Sonora by Mexico Highways 2 and 8. Activities that may affect animals in any portion of the U.S. range of the pronghorn may affect the size or structure of the U.S. sub-population, or habitat use within the U.S. range. The action area for this biological opinion is defined as the current range of the pronghorn within the U.S. (Figure 3), plus areas along the border 3.1 miles to the east and 2.1 miles to the west of the Lukeville POE.

Management of the action area is almost entirely by Federal agencies. The BMGR (roughly 1.6 million acres) is managed by Luke Air Force Base and MCAS-Yuma primarily for military training. OPCNM manages 329,000 acres in the southeastern corner of the action area for scenic, ecological, natural, and cultural values. CPNWR lies along the border west of OPCNM and encompasses 860,000 acres. CPNWR is managed to protect, maintain, and restore the diversity of the Sonoran Desert. Most of the refuge and OPCNM are designated as wilderness. The BLM manages lands near Ajo for recreation, grazing, and other multiple uses in accordance with the Lower Gila Resource Management Plan. OPCNM and CPNWR are critically important for Sonoran pronghorn recovery because of their management for protection of natural resources. Lands on the BMGR are managed primarily for military training, and although important recovery is ongoing on these lands and the Department of Defense has generously contributed to the recovery program both on and off the BMGR, changing military priorities could, in the future, limit the value of the BMGR for Sonoran pronghorn recovery.

B. Terrain, Vegetation Communities, and Climate in the Action Area

The action area is characterized by broad alluvial valleys separated by block-faulted mountains and surface volcanics. The Yuma Desert on the western edge of the BMGR is part of a broad valley that includes the Colorado River. Major drainages and mountain ranges run northwest to southeast. Major drainages flow mostly northward to the Gila River, although southern portions of OPCNM and the southern slope of the Agua Dulce Mountains drain south to the Río Sonoyta.

Climate is characterized by extreme aridity, mild winters, and hot summers. Approximately 2.7 inches of precipitation fall annually at Yuma, with slightly more than half of this occurring in the winter months (Brown 1982). Annual precipitation increases from west to east across the BMGR; at Aguajita/Quitobaquito, precipitation is 10.5 inches annually.

The vegetation community of the western portion of the BMGR has been classified as the lower Colorado River Valley subdivision of Sonoran Desert scrub (Brown 1982). It is the largest and most arid subdivision of Sonoran Desert scrub. The Arizona Upland subdivision of Sonoran Desert scrub is found in the Growler, Puerto Blanco, Ajo and Bates mountains, and surrounding bajadas.

C. Status of the Sonoran Pronghorn in the Action Area

Distribution, Abundance, and Life History

The distribution and abundance of the Sonoran pronghorn in the action area is the same as that described above in the Status of the Species for the U.S. sub-population. Life history, including demographics, chronology of breeding and movements, diet, and other factors were also described above for the U.S. population.

Drought

As discussed in the Status of the Species, anthropogenic climate change in the Southwest and the Sonoran Desert is predicted to result in warming trends and drier conditions, with accompanying changes in vegetation communities (Weiss and Overpeck 2005, Seager *et al.* 2007). Rowlands (2000) examined trends in precipitation for southwestern Arizona and OPCNM from 1895-1999. For southwestern Arizona, no trend in precipitation was found for the period, but low precipitation occurred around 1895 and during the 1950s. Periods of high precipitation occurred in 1915-1920 and in the 1980s. For OPCNM, there was a slightly increasing trend in monthly and annual precipitation over the period 1895-1999, a strong drought occurred in the 1950s, and a lesser drought occurred in the 1970s. No discernable trend in precipitation in southwestern Arizona or OPCNM was found in the 1990s, which is when the current decline in the U.S. pronghorn sub-population began.

Since Rowland's analysis, we had one year characterized by above-average rainfall and abundant ephemeral forage (2001) followed by a year with virtually no precipitation or ephemeral forage (2002). Recruitment and survival were high in 2001 and very low in 2002 (Bright and Hervert 2005). Based on the lack of forage and water, and the condition of pronghorn observed, drought is

considered the proximate cause of the 79% decline in the U.S. pronghorn sub-population from 2000 to 2002. The December 2007 long-term (48-months) drought status report (http://www.azwater.gov/dwr/drought/documents/December_2007_Drought_Monitor_Report.pdf) indicates that southwestern Arizona continues to experience abnormally dry to severe drought conditions. Despite this, since 2002, winter and summer precipitation, in conjunction with emergency recovery actions, has been adequate to maintain pronghorn reproduction and fawn survival.

Historically, pronghorn populations must have weathered many severe droughts in the Sonoran Desert, including many that were more severe and longer term than what has occurred recently. Given that pronghorn populations survived the droughts of the 1890s, 1950s, 1970s, and others before those, it is unreasonable to solely attribute recent declines in the U.S. pronghorn population to drought. OPCNM (2001) concluded, "If (individual) recent dry years have had an impact on Sonoran pronghorn, it is most likely because in recent decades Sonoran pronghorn have much more limited options for coping with even brief moderate drought. Because of restrictions on their movements and range, and increasing human presence within their range, pronghorn are less able to employ their nomadic strategy in search of relief. It is not that drought itself is an impact, but possibly that drought has *become* an impact, due to other factors confounding the species' normal ecological strategy."

Emergency Recovery Actions

A number of critically important emergency recovery projects have been recently initiated in an attempt to reverse the decline of the U.S. sub-population of the Sonoran pronghorn (Krausman *et al.* 2005b). These projects are designed to increase availability of green forage and water during dry periods and seasons to offset to some extent the effects of drought and barriers that prevent pronghorn from accessing greenbelts and water, such as the Gila River and Río Sonoyta. Nine emergency water sources (six on CPNWR, one on OPCNM, and two on BMGR-West) have been constructed in recent years throughout the range of the U.S. sub-population. Four forage enhancement plots, each consisting of a well, pump, pipelines and irrigation lines, have been developed to irrigate the desert and produce forage for pronghorn. One plot is currently being constructed and two additional plots will be installed over the next five years.

A semi-captive breeding facility at CPNWR was first stocked with pronghorn in 2004 and now contains 37 animals. As described above, this facility will be used to augment the current U.S. sub-population, and potentially to establish a second herd at Kofa NWR. These crucial projects, which we hope will pull the U.S. population back from the brink of extinction, have been cooperative efforts among FWS, Arizona Game and Fish Department, MCAS-Yuma, Luke Air Force Base, and OPCNM, with volunteer efforts from the Arizona Desert Bighorn Sheep Society, Arizona Antelope Foundation, and the Yuma Rod and Gun Club.

D. Past and Ongoing Non-Federal Actions in the Action Area

The Status of the Species section describes a variety of human activities that have affected the Sonoran pronghorn since initiation of livestock grazing over 300 years ago (Officer 1993). Most

non-Federal activities that have affected the pronghorn are historical in nature, and pronghorn have been all but extirpated from private, state, and Tribal lands.

E. Past and Ongoing Federal Actions in the Action Area

Because of the extent of Federal lands in the action area, most activities that currently, or have recently, affected the U.S. sub-population or their habitat are Federal actions. The primary Federal agencies involved in activities in the action area include the MCAS-Yuma, Luke Air Force Base, FWS, BLM, OPCNM, and Border Patrol. In the following discussion, we have categorized Federal actions affecting the pronghorn as: 1) those actions that have not yet undergone section 7 consultation (although in some cases consultation has been completed on components of the Federal activity), and 2) Federal actions that have undergone consultation.

Federal Actions For Which Consultation Has Not Been Completed

1) Tucson Sector of the Border Patrol

We have been in informal consultation with the Tucson Sector Border Patrol regarding development of a biological assessment for several years (consultation number 02-21-99-I-0138). This consultation will encompass all field activities conducted by the Tucson Sector under their program to detect, deter, and apprehend undocumented immigrants and drug traffickers. Activities within the Ajo Station of the Tucson Sector have the greatest potential to adversely affect pronghorn; although currently that Station is being operated out of the Yuma Sector. Adverse effects may result from patrol and drag road activities, off-road operations, aircraft overflights, the use and maintenance of sensors, construction of vehicle barriers and fences, and installation, operation, and maintenance of cameras and communication towers. From 2002 to 2006, about 180 miles of illegal roads were created in wilderness areas of CPNWR (Segee and Neeley 2006). These routes were likely created both by Border Patrol and smugglers, and all are probably used by Border Patrol. Furthermore, the potential for disturbance to pronghorn due to human presence may increase in areas where agents live on site (i.e., Operation Grip). Border Patrol activities can be beneficial as well, in that they deter illegal border crossings, foot traffic, and off-road vehicles in pronghorn habitat associated with undocumented aliens and smuggling. At the same time, effectiveness of Border Patrol operations elsewhere along the U.S/Mexico border have driven illegal activities into remote areas, such as CPNWR. McCasland (pers. comm. 2007) has anecdotal observations suggesting a negative correlation between areas of high Border Patrol and smuggling traffic and pronghorn use.

2) Smuggler/Drug Interdiction

We are aware of U.S. Customs, Drug Enforcement Authority, and Arizona Army National Guard smuggler or drug interdiction activities in pronghorn habitat, including vehicle and helicopter activities. However, none of these agencies have provided information to us about the extent or types of activities they conduct, and no consultation has occurred on these activities. Impacts are probably similar in scope to those described for the Tucson Sector activities.

3) BLM Off-Road Vehicle Use Area

We are aware of an off-road vehicle (ORV) use area located north of Ajo on BLM land, near the CPNWR, and adjacent to suitable pronghorn habitat. The BLM has not authorized the use of this ORV area but plans to in the updated Resource Management Plan (RMP) they are developing for BLM lands in the vicinity. They will request formal section 7 consultation on the updated RMP. To date, BLM has not provided us with information about the extent and type of use of the ORV area or its possible effects to pronghorn.

Federal Actions Addressed in Section 7 Consultations

As part of our comprehensive discussion of all past and present actions affecting pronghorn within the action area, we describe below all biological opinions issued to date on actions that may affect the pronghorn.

Several opinions addressed projects with minor effects to the pronghorn (capture and collaring of pronghorn for research purposes, consultation numbers 02-21-83-F-0026 and 02-21-88-F-0006; installation of a water source in the Mohawk Valley for pronghorn, consultation number 02-21-88-F-0081; implementation of the CPNWR Comprehensive Conservation Plan, consultation number 22410-2006-F-0416; a change in aircraft type from the F-15A/B to the F-15E on BMGR-East [F-15E Beddown Project], consultation number 02-21-89-F-0008; and the following projects at OPCNM: widen North Puerto Blanco Road project, consultation number 02-21-01-F-0109; roadway and drainage improvements to SR 85, consultation 02-21-01-F-0546; vehicle barrier, consultation number 02-21-02-F-237; and improvement, maintenance, and use of the West Boundary Route, consultation number 02-21-05-M-0100 (this opinion has not yet been finalized)). Incidental take was anticipated only for the Beddown Project in the form of harassment as a result of aircraft overflights. This project was later incorporated into the biological opinion on Luke Air Force Base's activities on the BMGR, discussed below. All of these formal consultations can be viewed on our website at <http://www.fws.gov/arizonaes/Biological.htm>.

Nine biological opinions evaluated major projects with greater effects to pronghorn:

Border Patrol Activities in the Yuma Sector, Wellton Station, Yuma, Arizona

This biological opinion (consultation number 02-21-96-F-0334), issued September 5, 2000, addressed all Border Patrol activities along the United States/Mexico border in Yuma County from the Colorado River to about the area of Pinta Sands at the southern end of the Sierra Pinta Mountains. The Yuma Sector requested reinitiation of consultation, and we delivered a draft biological opinion in 2004; however, we have not received comments from the Border Patrol to date. Currently, Border Patrol activities within the Yuma Sector/Wellton Station include helicopter and ground patrols; drag road preparation and assessment of road maintenance; remote sensor installation and maintenance; maintenance of pedestrian fences east and north of San Luis, construction of a vehicle barrier on the CPNWR, apprehensions and rescues; and assistance to other sectors and agencies. Disturbance to pronghorn was anticipated as a result of on-the-ground Border Patrol operations, and direct injury or mortality of pronghorn as a result of collision with Border Patrol vehicles or by low-level helicopter flights abruptly approaching and startling pronghorn, which may result in injury or energetic stress, particularly during drought.

Pronghorn may also be adversely affected by noise and visual impacts of helicopter overflights. To reduce adverse effects on pronghorn, the Border Patrol agreed to implement a number of conservation measures. We determined that the proposed action was not likely to jeopardize the continued existence of the pronghorn. We anticipated take in the form of harassment that is likely to injure up to one pronghorn in 10 years. The following reasonable and prudent measures were provided: 1) minimize injury of pronghorn; 2) monitor and study reactions of pronghorn on BMGR to Border Patrol activities; and 3) provide a means to determine the level of incidental take that results from Border Patrol activities. Several conservation recommendations were also provided. We are not aware of any incidental take attributable to Yuma Sector activities.

BLM's Lower Gila South Management Area

Three biological opinions address BLM's Lower Gila South Management Area. The Lower Gila South Resource Management Plan-Goldwater Amendment (consultation number 02-21-90-F-0042), proposed specific and general management guidance for non-military activities on the BMGR. The non-jeopardy biological opinion, issued April 25, 1990, was programmatic, requiring BLM to consult when site-specific projects are proposed. No incidental take was anticipated. The Lower Gila South Habitat Management Plan (HMP) (consultation number 02-21-89-F-0213) provided management guidance for both specific and general actions in southwestern Arizona. Four actions were addressed in the HMP, including an exchange of 640 acres near Ajo, rehabilitation work on two catchments, and assessment of livestock removal from pronghorn habitat. Exchange of land out of public ownership may facilitate development or other uses that would preclude use by pronghorn. The non-jeopardy opinion was issued on May 15, 1990. The biological opinion for the Lower Gila South Resource Management Plan and Amendment (consultation number 02-21-85-F-0069) addressed programmatic management of lands in southwestern Arizona, including livestock grazing, wilderness, cultural resources, fire, minerals and energy, recreation, wildlife management, wood cutting, Areas of Critical Environmental Concern, and other land uses. The non-jeopardy biological opinion was issued on March 27, 1998; no incidental take was anticipated. In regard to management on the BMGR, these three opinions have been replaced by the opinion on the BMGR's Integrated Natural Resources Management Plan (INRMP) (see below). The Air Force and MCAS-Yuma have assumed BLM's management responsibilities on the BMGR.

BLM grazing allotments in the vicinity of Ajo, Arizona

The original biological opinion (consultation number 02-21-94-F-0192), issued December 3, 1997, addressed effects to pronghorn resulting from issuance of grazing permits on five allotments, four of which were located near Ajo and Why (Cameron, Childs, Coyote Flat, and Why allotments); and the fifth near Sentinel (Sentinel allotment). All but portions of allotments east of Highway 85 were considered to be within the current distribution of the Sonoran pronghorn. Reinitiations resulted in revised biological opinions dated November 16, 2001, September 30, 2002, June 21, 2004, March 3, 2005, and March 8, 2007. Under the current proposed action, the Cameron Allotment is closed, the Sentinel Allotment has been in non-use for several years, the Coyote Flat and Why allotments were combined into one (Coyote Flat Allotment), and the Childs Allotment remains relatively unchanged in terms of management. Effects of livestock grazing activities included reduced forage availability for pronghorn, human

disturbance due to livestock management, barriers to movement caused by pasture and allotment fences, and potential for disease transfer from cattle to pronghorn. The March 8, 2007 opinion concluded that the proposed action was not likely to jeopardize the continued existence of the pronghorn. No incidental take was anticipated, and none is known to have occurred.

Organ Pipe Cactus National Monument General Management Plan

The original biological opinion (consultation number 02-21-89-F-0078), issued June 26, 1997, addressed implementation of OPCNM's General Management Plan (GMP). This opinion was reinitiated five times, resulting in revised biological opinions dated November 16, 2001, April 7, 2003, March 10 and August 23, 2005, and March 8, 2007. GMP plan elements included: 1) continuing travel and commerce on SR 85 while enhancing resource protection, 2) seeking designation of OPCNM as the Sonoran Desert National Park, 3) establishment of partnerships, 4) increased wilderness and an interagency wilderness and backcountry management plan, 5) changes in trails, facilities, and primitive camping, and 6) implementation of a Cultural Resources Management Plan. Included were a number of conservation measures to minimize impacts to pronghorn. Effects of the action included human disturbance to pronghorn and habitat due to recreation and management activities. We determined that the proposed action was not likely to jeopardize the continued existence of the pronghorn. In the latest versions of the opinion, no incidental take of pronghorn was anticipated. No incidental take is known to have occurred.

Marine Corps Air Station-Yuma in the Arizona Portion of the Yuma Training Range Complex

The original biological opinion (consultation number 02-21-95-F-0114), was issued on April 17, 1996. That opinion was reinitiated and revised opinions were issued November 16, 2001 and August 6, 2003. These opinions addressed all proposed and authorized actions on the BMGR by MCAS-Yuma, including ongoing and proposed changes to military flights over CPNWR and the BMGR, operation of various training facilities such as landing strips, a rifle range, targets, a parachute drop zone, a transmitter/telemetry system, ground support areas, and Weapons Tactics Instructor courses, conducted twice a year (March-April and October-November) that involve overflights, ground-based activities, and deliverance of ordnance at targets in BMGR-East. Ground-based activities, such as those of troops and vehicles at ground-support areas were determined to adversely affect pronghorn habitat use. In areas where helicopters fly particularly low and create noise and visual stimuli, disturbance of pronghorn was anticipated. Ordnance delivery at North and South TACs could disturb pronghorn, and ordnance, live fire, and shrapnel could potentially strike and kill or injure a pronghorn. MCAS-Yuma proposed measures to reduce the direct and indirect impacts of the proposed action, including measures to reduce or eliminate take of Sonoran pronghorn and to minimize destruction and degradation of habitat. We determined that the proposed action was not likely to jeopardize the continued existence of the pronghorn. In the 2003 version of the BO, no incidental take of pronghorn was anticipated and none is known to have occurred.

Luke Air Force Base Use of Ground-Surface and Airspace for Military Training on the BMGR

The original biological opinion (consultation number 02-21-96-F-0094), issued August 27, 1997, addressed military use of the airspace above and the ground space on BMGR-East and CPNWR by Luke Air Force Base. Military activities within the area of overlap with the CPNWR were limited to use of airspace and operation of four Air Combat Maneuvering Instrumentation sites. Military activities occurring within BMGR-East included: airspace use, four manned air-to-ground ranges, three tactical air-to-ground target areas, four auxiliary airfields, Stoval Airfield, and explosive ordnance disposal/burn areas. Primary potential effects of the action included habitat loss due to ground-based activities, harassment and possible mortality of pronghorn at target areas, and disturbance of pronghorn due to military overflights. We determined that the proposed action was not likely to jeopardize the continued existence of the pronghorn. This opinion was reinitiated in 2001 and 2003, resulting in revised opinions dated November 16, 2001 and August 6, 2003. In the latest (2003) opinion, no incidental take was anticipated. We are not aware of any take of pronghorn confirmed attributable to Luke Air Force Base use of the ground-surface and airspace on the BMGR. A pronghorn found dead near a target may have been strafed, but it may also have died from other causes (see "Effects of the Proposed Action" in the 2003 opinion for a full discussion of this incident).

During the development of these opinions, Luke Air Force Base made substantial commitments to minimize the effects of their activities on the Sonoran pronghorn, and additionally committed to implementing a variety of recovery projects recommended by the Sonoran Pronghorn Recovery Team.

Western Army National Guard Aviation Training Site Expansion Project

The non-jeopardy biological opinion for WAATS (consultation number 02-21-92-F-0227) was issued on September 19, 1997; however, Sonoran pronghorn was not addressed in formal consultation until reinitiations and revised opinions dated November 16, 2001 and August 6, 2003. The purpose of WAATS is to provide a highly specialized environment to train ARNG personnel in directed individual aviator qualification training in attack helicopters. The WAATS expansion project included: 1) expansion of the existing Tactical Flight Training Area, which includes establishing four Level III touchdown sites, 2) development of the Master Construction Plan at the Silver Bell Army Heliport, and 3) establishment of a helicopter aerial gunnery range for use by the ARNG on East TAC of the BMGR. All activities that are part of the proposed action occur outside the current range of the pronghorn, with the exception of training at North TAC. Training at North TAC only occurs when East TAC is closed for annual maintenance and EOD clearances (4-6 weeks each year). Effects to pronghorn at North TAC are minimized by monitoring protocols established by Luke Air Force Base. Training at East TAC could preclude recovery of historical habitat if the many other barriers that prevent pronghorn use of East TAC were removed. The November 16, 2001 and August 6, 2003 opinions found that the proposed action was not likely to jeopardize the continued existence of the pronghorn. No incidental take was anticipated and none is known to have occurred as a result of the proposed action. ARNG included the following conservation measures as part of their proposed action: 1) they proposed to study the effects of low-level helicopter flights on a surrogate pronghorn population at Camp Navajo, and 2) they committed to funding up to five percent of emergency recovery actions on the BMGR.

BMGR Integrated Natural Resources Management Plan

The non-jeopardy opinion for this action was issued on August 26, 2005. The Military Lands Withdrawal Act (MLWA) of 1999 required that the Secretaries of the Air Force, Navy, and Interior jointly prepare an INRMP for the BMGR, the purpose of which was to provide for the “proper management and protection of the natural and cultural resources of [the range], and for sustainable use by the public of such resources to the extent consistent with the military purposes [of the BMGR].” The proposed action was comprehensive land management, including public use restrictions, authorizations, and permitting on portions of the BMGR regarding camping, vehicle use, shooting, entry into mines, firewood collection and use, rockhounding, and other activities; natural resources monitoring, surveys, and research; habitat restoration; wildlife water developments; development of a wildfire management plan; law enforcement; limitations on the locations of future utility projects and the Yuma Area Service Highway; control of trespass livestock; and designation of special natural/interest areas, while allowing other designations to expire. The proposed action included many land use prescriptions that would improve the baseline for the pronghorn. No incidental take was anticipated, and none is known to have occurred from the proposed action.

Department of Homeland Security Permanent Vehicle Barrier

This biological opinion (consultation number 22410-2006-F-0113), issued September 15, 2006, addressed the CBP - Office of the Border Patrol’s installation of a permanent vehicle barrier (as well as access improvements, construction/improvement of border roads, and associated maintenance and patrol activities) along the border from the western end of the OPCNM barrier to Avenue C just east of San Luis, Arizona. Effects to pronghorn included 1) disturbance of a narrow swath of habitat along the border, 2) presence of construction crews and vehicles that may disturb or preclude use of the area by pronghorn, 3) presence of maintenance and patrol vehicles and crews along the barrier access road, and 4) dramatic reduction or elimination of illegal drive-throughs and required law enforcement response, with much reduced route proliferation and habitat damage from off-highway vehicles. We determined that the proposed action was not likely to jeopardize the continued existence of the pronghorn. No incidental take of pronghorn was anticipated. Subsequent to issuing the biological opinion, the action was changed to include the installation of a hybrid-style fence designed to prevent the passage of pedestrians. Because all environmental laws were waived (as permitted by the Real ID Act of 2005) by Secretary of the DHS, CBP never reinitiated consultation with us regarding this change to their proposed action.

F. Summary of Activities Affecting Sonoran Pronghorn in the Action Area

Historically, livestock grazing, hunting or poaching, and development along the Gila River and Río Sonoyta were all probably important factors in the well-documented Sonoran pronghorn range reduction and apparent population decline that occurred early in the 20th century. Historical accounts and population estimates suggest pronghorn were never abundant in the 20th century, but recently, the estimated size of the wild population in the action area declined from 179 (1992) to 21 (December 2002) and 68 (2006). At 21 and 68, genetic diversity could erode, and the sub-population is in imminent danger of extirpation due to human-caused impacts, or

natural processes, such as predation or continued drought. Although the proximate cause of the decline during 2002 was drought, human activities limit habitat use options by pronghorn and increase the effects of drought on the sub-population. The U.S. pronghorn sub-population is isolated from other sub-populations in Sonora by a highway and the U.S./Mexico boundary fence, and access to the greenbelts of the Gila River and Río Sonoyta, which likely were important sources of water and forage during drought periods, has been severed.

Within its remaining range, the pronghorn is subjected to a variety of human activities that disturb the pronghorn and its habitat, including military training, increasing recreational activities, grazing, increasing presence of undocumented immigrants and smugglers, and in response, increased law enforcement activities. MCAS-Yuma (2001) quantified the extent of the current pronghorn range that is affected by various activities and found the following: recreation covers 69.6 percent of the range, military training on North and South TACs covers 9.8 percent, active air-to-air firing range covers 5.8 percent, proposed EOD five-year clearance areas at North and South TACs and Manned Range 1 cover 1.0 percent, and MCAS-Yuma proposed ground support areas and zones cover 0.29 percent. Border Patrol enforcement and smuggling activities occur throughout the range of the pronghorn, and anecdotal evidence suggests pronghorn are avoiding areas of high enforcement and illegal activities. Historically, pronghorn tended to migrate to the southeastern section of their range (southeastern CPNWR and OPCNM) during drought and in the summer. Within the last few years, very few pronghorn have been observed south of El Camino del Diablo on CPNWR. This suggests illegal smuggling and the interdiction of these illegal activities have resulted in pronghorn avoiding areas south of El Camino del Diablo; these areas are considered important summer habitat for pronghorn and may have long-term management and recovery implications (McCasland pers. comm. 2007). All of the valleys at CPNWR, which were once nearly pristine wilderness Sonoran Desert, now have many braided, unauthorized routes through them and significant vehicle use by USBP agents pursuing illegal immigrants and smugglers. OPCNM (2001) identified 165 human activities in the range of the pronghorn, of which 112 were adverse, 27 were beneficial, 26 had both adverse and beneficial effects, and four had unknown effects. OPCNM (2001) concluded that in regard to the pronghorn, "while many projects have negligible impacts on their own, the sheer number of these actions is likely to have major adverse impacts in aggregate."

Although major obstacles to recovery remain, since 2002, numerous crucial recovery actions have been implemented in the U.S. range of the species, including nine emergency waters and four forage enhancement plots, with additional waters and forage plots planned. The projects tend to offset the effects of drought and barriers to prevent movement of pronghorn to greenbelts such as the Gila River and Río Sonoyta. A semi-captive rearing facility, built on Cabeza Prieta NWR, currently holds 37 pronghorn. This facility will provide pronghorn to augment the existing sub-population and hopefully to establish a second U.S. sub-population at Kofa NWR.

The current range of the pronghorn in the U.S. is almost entirely comprised of lands under Federal jurisdiction; thus authorized activities that currently affect the pronghorn in the action area are almost all Federal actions. However, illegal, unauthorized foot traffic and off-road vehicle activity, but also required Federal law enforcement response have been and continue to be significant threats to the pronghorn and its habitat. Prior to November 2001, in seven of 12 biological opinions issued by FWS that analyzed impacts to the pronghorn, we anticipated that

take would occur. In total, we anticipated take of five pronghorn in the form of direct mortality every 10-15 years, and an undetermined amount of take in the form of harassment. Given the small and declining population of pronghorn in the U.S. at the time the opinions were written, take at the levels anticipated in the biological opinions would constitute a substantial impact to the population.

Changes made in proposed actions and reinitiated biological opinions from 2001 to the present, plus the findings in other recent opinions, reduced the amount or extent of incidental take anticipated to occur from Federal actions. Significantly, we have been successful working with action agencies to modify proposed actions and to include significant conservation measures that reduce adverse effects to the pronghorn and its habitat. The only current opinion that anticipates incidental take is the Yuma Sector opinion, in which we anticipated take in the form of harassment that is likely to injure up to one pronghorn in 10 years. With the exception of likely capture-related deaths during telemetry studies (which were addressed in 10(a)(1)(A) recovery permits), we are unaware of any confirmed incidental take resulting from the Federal actions described here (although a pronghorn may have been strafed near one of the targets on BMGR-East – see above).

We believe the aggregate effects of limitations or barriers to movement of pronghorn and continuing stressors, including habitat degradation and disturbance within the pronghorn's current range resulting from a myriad of human activities, exacerbated by periodic dry seasons or years, are responsible for the present precarious status of the Sonoran pronghorn in the action area. However, collaborative, multi-agency and multi-party efforts to develop forage enhancement plots and emergency waters, combined with the success of the semi-captive breeding facility, plus planned future recovery actions, including establishment of a second U.S. sub-population, provide hope that recovery of the Sonoran pronghorn in the U.S. is achievable.

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

Sonoran Pronghorn

The proposed fence project may result in disturbance to Sonoran pronghorn and/or degradation of pronghorn habitat. Construction and maintenance of the fence and roads, as well as possible increased illegal pedestrian and law enforcement activity to the west of the project will result in removal, destruction, and disturbance of vegetation that may provide forage and cover to pronghorn and may visually and auditorily disturb pronghorn. Though activities associated with the proposed project may be detrimental to pronghorn, conservation measures included in the project description will minimize and help offset disturbance to pronghorn and degradation of

their habitat. The fence may have a beneficial effect on pronghorn and pronghorn habitat in the Lukeville area if it is successful in reducing the number of illegal pedestrians that currently cross into the pronghorn range from Mexico. However, habitat damage and disturbance of pronghorn to the west of the project may increase if illegal traffic is redirected to the west of the fence.

Effects from Construction and Maintenance Activities

Construction and maintenance activities associated with the project may result in some, though we anticipate minimal, disturbance to Sonoran pronghorn, particularly on the western slope of Sonoyta Hill, where there is a greater chance for pronghorn to occur. At least during the project construction phase, disturbance will be minimized by having a biological monitor present (only during construction activities on the western slope of Sonoyta Hill) to ensure that all project construction activities are suspended if Sonoran pronghorn are detected within 0.62 mile of project activities. Access to the western portion of the construction site (i.e., west of Highway 85) will be along the OPCNM border road and South Puerto Blanco road. Though use of these roads may result in some disturbance to Sonoran pronghorn, because pronghorn are not likely to occur near the border or South Puerto Blanco roads between Highway 85 and Sonoyta Hill (based on pronghorn detections for the last 13 years and abundant near-by human presence), we anticipate disturbance to pronghorn will be minimal. Vehicles associated with construction and maintenance could also collide with pronghorn causing injury and/or death. However, we believe the likelihood of collisions with construction and maintenance vehicles is probably low because, as described in the “Status of the Species”, pronghorn are relatively rare, particularly within the project corridor; vehicles will travel at speeds less than 25 miles per hour; and because we are not aware of any such collisions in the U.S., or along unpaved routes anywhere within the range of the Sonoran pronghorn.

Effects from Pedestrian Traffic and Patrol Activities

The fence may have a beneficial effect on Sonoran pronghorn if it reduces illegal pedestrian activities and law enforcement pursuits within the Sonoran pronghorn range. These benefits are most likely to accrue immediately north of the pedestrian fence in the Lukeville area. However, if illegal traffic is redirected, particularly to the west of fence, disturbance to pronghorn and important pronghorn habitat in that area will increase. Patrol activities, which are expected to increase to the west of the fence if illegal traffic shifts west, may additionally disturb pronghorn and their habitat. As noted in the Environmental Baseline, pronghorn appear to be avoiding areas south of the Camino del Diablo in CPNWR possibly due to high levels of smuggling and required law enforcement response. Shifting traffic to west of the Lukeville fence would exacerbate these effects. Increased illegal and law enforcement activities in pronghorn habitat could cause pronghorn to flee and result in short-term denial of access to habitat, both of which would likely result in severe adverse physiological effects to pronghorn. As discussed in the “Status of the Species” and below, Sonoran pronghorn are sensitive to human disturbance. Vehicle traffic is disturbing to pronghorn and will often cause flight or startle responses with associated adverse physiological changes. Hughes and Smith (1990) found that pronghorn immediately ran 1,310-1,650 feet from a vehicle. Krausman *et al.* (2001) found that Sonoran pronghorn reacted to ground disturbances (vehicles or people on foot) with a change in behavior 37 percent of the time, resulting in the animals running or trotting away 2.6 percent of the time. Wright and deVos (1986) noted that Sonoran pronghorn exhibit “a heightened response to human traffic” as compared to other subspecies of pronghorn. Disturbance and flight of

ungulates are known to result in a variety of physiological effects that are adverse, including elevated metabolism, lowered body weight, reduced fetus survival, and withdrawal from suitable habitat (Geist 1971, Harlow *et al.* 1987), which may be exacerbated in harsh environments such as those occupied by Sonoran pronghorn. Disturbance may also lead to mortality, including increased vulnerability to predator attack and susceptibility to heat stress and malnutrition.

Because pronghorn are rare, encounters with illegal immigrants and smugglers should be a relatively rare event. The likelihood of encounters will increase however if illegal traffic increases to the west of the fence. Patrol vehicles pursuing illegal immigrants/smugglers along the improved vehicle route adjacent to the pedestrian fence or in areas to west of the fence in response a shift in illegal traffic could also collide with pronghorn causing injury and/or death. However, we believe the likelihood of collisions with patrol vehicles is probably low because vehicles will not likely be traveling at high speeds (due to traveling primarily along unimproved routes); we are not aware of any such collisions in the U.S., or along unpaved routes anywhere within the range of the Sonoran pronghorn; and pronghorn are relatively rare. Shifts in illegal and law enforcement activity to the west could also further degrade pronghorn habitat in that area. Trails and other soil disturbance can increase erosion, promote the spread of invasive species, and increase the potential for fires, which can adversely affect Sonoran pronghorn habitat. Additionally, off-road vehicle travel can cause changes in surface hydrology (from channelization of water in entrenched vehicle track prisms), which may substantially impact vegetation that provides forage and cover to pronghorn.

However, if patrol increases to the west of the fence along the border, and illegal activity is more successfully interdicted at the border, we anticipate the frequency of law enforcement pursuits through the action area should decrease, which will minimize disturbance to pronghorn and degradation of their habitat. Increased patrol along the border may disturb pronghorn and cause them to avoid or less frequently use the border area. However, because pronghorn are rare along the border, encounters with patrol activities near the border should be a relatively rare event.

Habitat Loss and Degradation

The proposed project would result in the direct disturbance of approximately 45 acres (this includes 17 acres of previously disturbed area); however, much of this is not considered suitable habitat for pronghorn due to abundant near-by human presence or rocky, steep terrain. However, the 45 acres of disturbed ground will be susceptible to colonization by invasive non-native plants such as buffelgrass, Sahara mustard, and *Eruca vesicaria*. Non-native species may outcompete natives and carry fire which could impact near-by pronghorn habitat. As stated in the "Status of the Species", most Sonoran Desert trees, shrubs, and cacti, which provide thermal cover and forage for pronghorn, are very fire intolerant.

Removal of vegetation via fire and direct disturbance in the pronghorn's range decreases the amount of thermal cover and forage available to pronghorn, with adverse effects to pronghorn, especially in drought situations when less forage is already available. The amount of habitat loss due to fence and road construction, however, is extremely small in the context of the approximately 2 million acres of potentially suitable habitat available to the U.S. sub-population of Sonoran pronghorn. The amount of habitat loss due to potential fire cannot be predicted; however, fire could impact a significant amount of pronghorn habitat. Control of non-native

plants within the project footprint, as proposed by CBP, should help decrease the risk of fire within the Sonoran pronghorn range. Additionally, restoration of 84 acres, if it occurs within the Sonoran pronghorn range, should help offset impacts to pronghorn habitat caused by the project.

Barriers to Pronghorn Movement

The proposed project overlays an existing barrier to Sonoran pronghorn movement, the international boundary. It is generally thought that pronghorn currently do not cross the international boundary due to the combined barrier effects of: (1) the international-boundary livestock fence; (2) Mexican Highway 2; (3) right-of-way fencing and livestock fencing that is intermittent along Highway 2 between Sonoyta and San Luis; and (4) human settlements and activity concentrations, which are expanding linearly along the boundary. Mexican Highway 2 does not continue near the border east of Lukeville (it turns south) and thus does not act as a barrier to trans-border Sonoran pronghorn movement along the eastern portion of the proposed project. Sonoran pronghorn, however, in recent years have only rarely been documented using the eastern portion of the proposed project area, likely due to the barrier effect of Highway 85. The proposed fence would completely impede any attempted trans-border Sonoran pronghorn movements near Lukeville. However, because Sonoran pronghorn are not known to cross the international border due to aforementioned existing barriers, we do not anticipate the fence will affect their trans-border movement patterns.

Conservation Measures

CBP's commitments to provide funding to fill a Sonoran pronghorn water for 10 years (at an annual cost of \$2,500.00) will help offset potential impacts to pronghorn that may occur as a result of this project and will generally aid in the conservation and recovery of pronghorn. Furthermore, restoration of 84 acres, if it occurs with the Sonoran pronghorn range, will also help offset project impacts to pronghorn.

Pronghorn Status

The most recent formal Sonoran pronghorn survey in December 2006 resulted in an estimated 68 wild pronghorn in the U.S. population, which was a substantial increase from an estimated 18 wild pronghorn in the U.S. in 2002. This increase can likely be attributed to improved habitat conditions since 2002 when a severe drought occurred, as well as emergency recovery actions such as forage enhancement plots and waters (see details under the "Environmental Baseline"), which undoubtedly offset to some extent the effects of drought and barriers that prevent pronghorn from accessing greenbelts and water, such as the Gila River and Río Sonoyta. We expect these recovery actions may also help offset adverse effects from this project as well as other activities within the action area that disturb pronghorn and their habitat. Because pronghorn remain critically endangered, however, it is imperative that all adverse effects to pronghorn from the proposed action and other activities are minimized and offset to the greatest extent possible.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future

Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Most lands within the action area (current range of the pronghorn within Arizona) are managed by Federal agencies; thus, most activities that could potentially affect pronghorn are Federal activities that are subject to section 7 consultation. The effects of these Federal activities are not considered cumulative effects. Relatively small parcels of private and State lands occur within the currently-occupied range of the pronghorn near Ajo and Why, north of the BMGR from Dateland to Highway 85, and from the Mohawk Mountains to Tacna. State inholdings in the BMGR were acquired by the USAF. Continuing rural and agricultural development, recreation, vehicle use, grazing, and other activities on private and State lands adversely affect pronghorn and their habitat. MCAS-Yuma (2001) reports that 2,884 acres have been converted to agriculture near Sentinel and Tacna. These activities on State and private lands and the effects of these activities are expected to continue into the foreseeable future. Historical habitat and potential recovery areas currently outside of the current range are also expected to be affected by these same activities on lands in and near the action area in the vicinity of Ajo, Why, and Yuma.

Of particular concern are illegal border crossings by undocumented immigrants and smugglers. In fiscal year 2005, the Yuma Sector of the Office of Border Patrol (OBP) apprehended record numbers of illegal immigrants and smugglers, and from October 1, 2005 to May 2006, 96,000 were made, which was a 13% increase over the same time period in 2005 (Gerstenzang 2006). In 2001, estimates of undocumented migrant traffic reached 1,000 per night in OPCNM alone (National Park Service 2001 or OPCNM 2001) and an estimated 150,000 people entered the OPCNM illegally from Mexico (Milstead and Barns 2002). Increased presence of the Border Patrol in the Douglas, Arizona area, and in San Diego (Operation Gatekeeper) and southeastern California, pushed illegal immigrant and smuggler traffic into remote desert areas, such as CPNWR, OPCNM, and BMGR (Klein 2000). Though the operation of Camp Grip within the CPNWR and the temporary camp detail at Bates Well on the OPCNM reduced the number of illegal drive-throughs in the eastern portion of the CPNWR in FY 2005 (Hubbard 2005, as cited in U.S. Customs and Border Protection 2005). In recent years, the number of illegal roads and foot trails created by illegal immigrants within the CPNWR has increased substantially (U.S. Customs and Border Protection 2005, C. McCasland pers. comm. 2007). These illegal crossings and required law enforcement response have resulted in route proliferation, off-highway vehicle activity, increased human presence in backcountry areas, discarded trash, abandoned vehicles, cutting of firewood, illegal campfires, and increased chance of wildfire. Habitat degradation and disturbance of pronghorn almost certainly result from these illegal activities. Currently, much of the illegal traffic travels through the southern passes of the Growler Mountains and lead either through or by all of our forage enhancements and captive rearing pen in the Child's Valley, with potential to impact these recovery projects and use of the area by pronghorn (C. McCasland pers. comm. 2007). Probably due to increased enforcement presence, ongoing construction of a vehicle barrier at CPNWR, and the vehicle barrier at OPCNM, all forms of illegal activities except narcotics trafficking are significantly down so far in fiscal year 2008 as compared to the same period in fiscal year 2007. Apprehensions are down from 40-67% at OPCNM and CPNWR over this period, and thus far in FY 08 no drive-throughs have occurred at OPCNM (CBP presentation to the Borderlands Management Task Force, January 16, 2008). Despite high levels of illegal activity and required law enforcement response throughout the action area,

pronghorn in the U.S. have managed to increase since 2002, although their use of areas subject to high levels of illegal use and law enforcement have likely declined, as discussed above.

We expect illegal activities and their effects on pronghorn to continue, though they should be reduced once the PVB on CPNWR is completed (as of this writing, the PVB has been installed from the border of OPCNM and CPNWR to the boundary of Pima and Yuma counties).

CONCLUSION

After reviewing the current status of the Sonoran pronghorn, the environmental baseline for the action area, the effects of the proposed activities associated with the Lukeville fence project, and the cumulative effects, it is our biological opinion the proposed action is not likely to jeopardize the continued existence of the Sonoran pronghorn. No critical habitat has been designated for this species, therefore, none will be affected. Our conclusion is based on the following:

1. The Sonoran pronghorn population has increased since 2002, despite high levels of human use in the form of off- and on-road vehicle and foot travel by smugglers, illegal immigrants, and law enforcement.
2. Completion of forage enhancement plots, waters, and the semi-captive breeding facility have helped make the pronghorn population in the U.S. more secure and more resistant to drought and other stressors.
3. Loss of pronghorn habitat resulting from this project is very small in the context of the approximately 2 million acres of potentially suitable habitat available to the U.S. sub-population of Sonoran pronghorn. Additionally, habitat disturbance will be minimized by conducting project activities within previously disturbed areas to the extent practicable.
4. The likelihood of pronghorn crossing the international boundary with Mexico in the project area is currently very low because of current physical barriers (e.g., Mexico Highway 2) and human activities. Therefore, the presence of the Lukeville fence is unlikely to result in additional barriers to pronghorn movement across the international boundary.
5. Conservation measures included in the proposed action will reduce disturbance to pronghorn during project construction activities (i.e., the presence of a biological monitor to ensure that all project construction activities are suspended if pronghorn are detected within 0.62 mile of project activities).
6. Conservation measures included in the proposed action (i.e., funding to fill a pronghorn water and habitat restoration) will help offset adverse effects to pronghorn that could result from implementation of the project.
7. When added to the environmental baseline, the status of the species, and cumulative effects, the effects of the proposed action do not reduce appreciably the likelihood of

survival and recovery of the subspecies in the wild. Therefore, the proposed action will not jeopardize the continued existence of the subspecies. Though illegal activity could increase to the west of the fence, such activity should be reduced by CPB/USBP's assignment of additional agents to unprotected areas. The presence of a vehicle barrier to the west of the fence also halts most or all illegal vehicle traffic. Consequently, adverse effects to pronghorn from possible increased illegal activity should be minimized. Additionally, once the Lukeville fence is completed we expect to see a dramatic decrease in illegal traffic in the Lukeville area. Decreased illegal and legal human activity within pronghorn habitat in the vicinity of Lukeville will be beneficial to pronghorn.

The conclusions of this biological opinion are based on full implementation of the project as described in the "Description of the Proposed Action" section of this document, including any conservation measures that were incorporated into the project design.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR 17.3). "Harass" is defined as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering (50 CFR 17.3). "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this incidental take statement.

AMOUNT OR EXTENT OF TAKE ANTICIPATED

We do not anticipate the proposed action will result in incidental take of Sonoran pronghorn for the following reasons:

1. Pronghorn are rare; making encounters with human activities (both legal and illegal) associated with the Lukeville fence project a relatively rare event.
2. Measures included in the proposed action, such as the daily surveys for Sonoran pronghorn, will further reduce the potential for take.
3. No incidental take of Sonoran pronghorn is known to have occurred in Arizona due to CBP/OBP or illegal immigrant/smuggler activities.

LESSER LONG-NOSED BAT

STATUS OF THE SPECIES

A. Species Description

The lesser long-nosed bat is a medium-sized, leaf-nosed bat. It has a long muzzle and a long tongue, and is capable of hover flight. These features are adaptations for feeding on nectar from the flowers of columnar cacti (e.g., saguaro; cardon, *Pachycereus pringlei*; and organ pipe cactus, *Stenocereus thurberi*) and from paniculate agaves (e.g., Palmer's agave, *Agave palmeri*) (Hoffmeister 1986). The lesser long-nosed bat was listed (originally, as *Leptonycteris sanborni*; Sanborn's long-nosed bat) as endangered in 1988 (U.S. Fish and Wildlife Service 1988). No critical habitat has been designated for this species. A recovery plan was completed in 1994 (U.S. Fish and Wildlife Service 1997). Loss of roost and foraging habitat, as well as direct taking of individual bats during animal control programs, particularly in Mexico, have contributed to the current endangered status of the species. Recovery actions include roost monitoring, protection of roosts and foraging resources, and reducing existing and new threats.

B. Distribution and Life History

The lesser long-nosed bat is migratory and found throughout its historical range, from southern Arizona and extreme southwestern New Mexico, through western Mexico, and south to El Salvador. It has been recorded in southern Arizona from the Picacho Mountains (Pinal County) southwest to the Agua Dulce Mountains (Pima County) and Copper Mountains (Yuma County), southeast to the Peloncillo Mountains (Cochise County), and south to the international boundary. Roosts in Arizona are occupied from late April to September (Cockrum and Petryszyn 1991) and on occasion, as late as November (Sidner 2000); the lesser long-nosed bat has only rarely been recorded outside of this time period in Arizona (U. S. Fish and Wildlife Service 1997, Hoffmeister 1986, Sidner and Houser 1990). In spring, adult females, most of which are pregnant, arrive in Arizona gathering into maternity colonies. These roosts are typically at low elevations near concentrations of flowering columnar cacti. After the young are weaned these colonies mostly disband in July and August; some females and young move to higher elevations, primarily in the southeastern parts of Arizona near concentrations of blooming paniculate agaves. Adult males typically occupy separate roosts forming bachelor colonies. Males are known mostly from the Chiricahua Mountains and recently the Galiuro Mountains (personal communication with Tim Snow, Arizona Game and Fish Department, 1999) but also occur with adult females and young of the year at maternity sites (U. S. Fish and Wildlife Service 1997). Throughout the night between foraging bouts, both sexes will rest in temporary night roosts (Hoffmeister 1986).

Lesser long-nosed bats appear to be opportunistic foragers and extremely efficient fliers. They are known to fly long distances from roost sites to foraging sites. Night flights from maternity colonies to flowering columnar cacti have been documented in Arizona at 15 miles, and in Mexico at 25 miles and 36 miles (one way) (Dalton *et al.* 1994; personal communication with V. Dalton, 1997; personal communication with Y. Petryszyn, University of Arizona, 1997). Steidl (personal communication, 2001) found that typical one-way foraging distance for bats in southeastern Arizona is roughly 12.5 miles. A substantial portion of the lesser long-nosed bats at the Pinacate Cave in northwestern Sonora (a maternity colony) fly 25-31 miles each night to

foraging areas in OPCNM (U.S. Fish and Wildlife Service 1997). Horner *et al.* (1990) found that lesser long-nosed bats commuted 30-36 miles round trip between an island maternity roost and the mainland in Sonora; the authors suggested these bats regularly flew at least 47 miles each night. Lesser long-nosed bats have been observed feeding at hummingbird feeders many miles from the closest known potential roost site (personal communication with Yar Petryszyn, University of Arizona, 1997).

Lesser long-nosed bats, which often forage in flocks, consume nectar and pollen of paniculate agave flowers and the nectar, pollen, and fruit produced by a variety of columnar cacti. Nectar of these cacti and agaves is high energy food. Concentrations of some food resources appear to be patchily distributed on the landscape, and the nectar of each plant species used is only seasonally available. Cacti flowers and fruit are available during the spring and early summer; blooming agaves are available primarily from July through October. In Arizona, columnar cacti occur in lower elevational areas of the Sonoran Desert region, and paniculate agaves are found primarily in higher elevation desert scrub areas, semi-desert grasslands and shrublands, and into the oak woodland (Gentry 1982). Lesser long-nosed bats are important pollinators for agave and cacti, and are important seed dispersers for some cacti.

C. Status and Threats

Recent information indicates that lesser long-nosed bat populations appear to be increasing or stable at most Arizona roost sites identified in the recovery plan (AGFD 2005, Tibbitts 2005, Wolf and Dalton 2005). Lesser long-nosed bat populations additionally appear to be increasing or stable at other roost sites in Arizona and Mexico not included for monitoring in the recovery plan (Sidner 2005). Less is known about lesser long-nosed bat numbers and roosts in New Mexico. Though lesser long-nosed bat populations appear to be doing well, many threats to their stability and recovery still exist, including excess harvesting of agaves in Mexico; collection and destruction of cacti in the U.S.; conversion of habitat for agricultural and livestock uses, including the introduction of buffleggrass, a non-native, invasive grass species; wood-cutting; drought; fires; human disturbance at roost sites; and urban development.

Approximately 20 – 25 large lesser long-nosed bat roost sites, including maternity and late-summer roosts, have been documented in Arizona (personal communication with Scott Richardson, FWS, 2006). Of these, 10 – 20 are monitored on an annual basis depending on available resources. Monitoring in Arizona in 2004 documented approximately 78,600 lesser long-nosed bats in late-summer roosts and approximately 34,600 in maternity roosts. Ten to 20 lesser long-nosed bat roost sites in Mexico are also monitored annually. Over 100,000 lesser long-nosed bats are found at just one natural cave at the Pinacate Biosphere Reserve, Sonora, Mexico (Cockrum and Petryszyn 1991). The numbers above indicate that although a relatively large number of lesser long-nosed bats exist, the relative number of known large roosts is quite small.

Maternity roosts, suitable day roosts, and concentrations of food plants are all critical resources for the lesser long-nosed bat. All of the factors that make roost sites useable have not yet been identified, but maternity roosts tend to be very warm and poorly ventilated (U.S. Fish and Wildlife Service 1997). Human presence/disturbance at roosts is clearly an important factor as

bats appear to be particularly sensitive to human disturbance at roost sites. For example, the illegal activity, presumably by immigrants or smugglers, at the Bluebird maternity roost site, caused bats to abandon the site in 2002, 2003, and 2005. The presence of alternate roost sites may be critical when this type of disturbance occurs.

The lesser long-nosed bat recovery plan (U.S. Fish and Wildlife Service 1997) identifies the need to protect foraging areas and food plants such as columnar cacti and agaves. More information regarding the average size of foraging areas around roosts would be helpful to identify the minimum area around roosts that should be protected to maintain adequate forage resources.

The 2005 fires referred to under Sonoran Pronghorn “Status of the Species” affected some lesser long-nosed bat foraging habitat, though the extent is unknown. For example, the Goldwater, Aux, and Sand Tank Fire Complexes on BMGR-East burned through and around isolated patches of saguaros, but the immediate effects and longer term impacts of the fires on saguaros are not yet known. Monitoring of saguaro mortality rates should be done to assess the impacts on potential lesser long-nosed bat foraging habitat. Fire suppression activities associated with the 2005 fires could also have affected foraging habitat. For example, slurry drops may have left residue on saguaro flowers, which could have impacted lesser long-nosed bat feeding efficiency or resulted in minor contamination.

Drought (see the “Status of the Species” and “Environmental Baseline” for Sonoran pronghorn for further details regarding drought) may affect lesser long-nosed bat foraging habitat, though the effects of drought on bats are not well understood. The drought in 2004 resulted in near complete flower failure in saguaros throughout the range of lesser long-nosed bats. During that time however, in lieu of saguaro flowers, lesser long-nosed bats foraged heavily on desert agave (*Agave deserti*) flowers, a plant not typically used by lesser long-nosed bats (personal communication with Scott Richardson, FWS, March 20, 2006). Similarly, there was a failure of the agave bloom in southeastern Arizona in 2006, probably related to the ongoing drought. As a result, lesser long-nosed bats left some roosts earlier than normal, and increased use of hummingbird feeders by lesser long-nosed bats was observed in the Tucson area (personal communication with Scott Richardson, FWS, January 11, 2008). Monitoring bats and their forage during drought years is needed to better understand the effects of drought on this species.

We have produced numerous biological opinions on the lesser long-nosed bat since it was listed as endangered in 1988, some of which anticipated incidental take. Incidental take has been in the form of direct mortality and injury, harm, and harass and has typically been only for a small number of individuals. Because incidental take of individual bats is difficult to detect, incidental take has often been quantified in terms of loss of forage resources, decreases in numbers of bats at roost sites, or increases in proposed action activities.

A few examples of more recent biological opinions that anticipated incidental take for lesser long-nosed bats are summarized below. The 2007 biological opinion for the installation of one 600 kilowatt wind turbine and one 50KW mass megawatts wind machine on Fort Huachuca included incidental take in the form of 10 bats caused by blade-strikes for the life (presumed indefinite) of the proposed action. The 2005 biological opinion for implementation of the Coronado National Forest Land and Resource Management Plan (U.S. Forest Service) included

incidental take in the form of harm or harass. The amount of take for individual bats was not quantified; instead take was to be considered exceeded if simultaneous August counts (at transitory roosts in Arizona, New Mexico, and Sonora) drop below 66,923 lesser long-nosed bats (the lowest number from 2001 – 2004 counts) for a period of two consecutive years as a result of the action. The 2004 biological opinion for the Bureau of Land Management Arizona Statewide Land Use Plan Amendment for Fire, Fuels, and Air Quality Management included incidental take in the form of harassment. The amount of incidental take was quantified in terms of loss of foraging resources, rather than loss of individual bats. The 2003 biological opinion for Marine Corps Air Station (MCAS) – Yuma Activities on the BMGR included incidental take in the form of direct mortality or injury (five bats every 10 years). Because take could not be monitored directly, it was to be considered exceeded if nocturnal low-level helicopter flights in certain areas on the BMGR increased significantly or if the numbers of bats in the Agua Dulce or Bluebird Mine roosts decreased significantly and MCAS-Yuma activities were an important cause of the decline. The 2002 biological opinion for Department of the Army Activities at and near Fort Huachuca (Fort), Arizona anticipated incidental take in the form of direct mortality or injury (six bats over the life of the project), harassment (20 bats per year), and harm (10 bats over the life of the project).

ENVIRONMENTAL BASELINE

A. Action Area

The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR §402.02). The FWS has determined that the action area for the lesser long-nosed bat includes the areas directly impacted by the installation of primary fence (including the fence and access roads) and an area around the project defined by a circle with a radius of 36 miles (the maximum documented one-way foraging distance of the lesser long-nosed bat). The action area represents only a small portion of the lesser long-nosed bat's range.

Management of the action area is largely by Federal agencies, as described in the "Action Area" for Sonoran pronghorn. The action area for the lesser long-nosed bat also includes part of the Tohono O'odham Nation (TON) and lands near the border in Sonora.

B. Terrain, Vegetation Communities, and Climate in the Action Area

A description of the region encompassing the action area has been previously provided (see "Environmental Baseline", part B. Terrain, Vegetation Communities, and Climate in the Action Area" for the Sonoran pronghorn).

The project is near the Sonoyta and Puerto Blanco mountains. Suitable day and night roosting potentially occur within the immediate project vicinity, however, these areas have not recently been surveyed for lesser long-nosed bat roosts.

C. Status of the Lesser Long-Nosed Bat in the Action Area

Based on the known foraging distances for lesser long-nosed bats, it is likely that this species forages throughout portions of the OPCNM, CPNWR, TON, and BLM lands, where flowers and fruit of saguaro, organ pipe, prickly pear, and agave are available.

Three large maternity roosts occur in the action area, including Bluebird Mine, Copper Mountain Mine, and Pinacate Cave. Bluebird Mine, located along the eastern border of CPNWR in the Growler Mountains, is over 15 miles northwest of the nearest border portion of the project site and generally supports an estimated 3,000 lesser long-nosed bats at the peak of annual occupancy (U.S. Fish and Wildlife Service 1997). The highest estimate of lesser long-nosed bats using Bluebird Mine from 2001-2005 was 4,500. They abandoned the mine however in 2002, 2003, and 2005 due to disturbance from illegal activities. In 2004, the bats returned to the mine after CPNWR staff placed a high steel fence around the mine to prevent disturbance. The bats returned to the mine in 2005, however abandoned the site once again after the fence was damaged, presumably by illegal immigrants or smugglers.

Copper Mountain Mine, located within the OPCNM, is about 15 miles north of the nearest border portion of the project and supports approximately 25,000 bats at the peak of annual occupancy (National Park Service 2002). The highest estimate of lesser long-nosed bats using Copper Mountain Mine from 2001-2005 was 35,000.

The largest maternity roost in the project area is Pinacate Cave in northern Sonora, Mexico. Approximately 40 miles south of the nearest border portion of project site, this roost is estimated to support about 130,000 bats each year (U.S. Fish and Wildlife Service 1997). In May 2006, approximately 200,000 lesser long-nosed bats were counted at the Pinacate Cave. However, in 2007, a significantly lower number of lesser long-nosed bats (83,000) were observed at this roost.

Before they give birth, female bats probably occasionally move between the Bluebird and Copper Mountain roosts, and it has been recommended that these two roosts be censused simultaneously to avoid double-counting bats (U.S. Fish and Wildlife Service 1997). Observations at Copper Mountain and Pinacate Cave indicate that they are occupied from mid-April to early-to-mid-September (U.S. Fish and Wildlife Service 1997), although these roosts reach their peak occupancy in late spring/early summer.

Though OPCNM and CPNWR monitor the Copper Mountain and Bluebird roosts annually to determine the presence, abundance, and disturbance of lesser long-nosed bats, including examining the roost year round for evidence of human entry, the rest of OPCNM and CPNWR has not been well surveyed to determine the number of additional day and night roosts that might exist in natural caves and/or mineshafts. A small roost or roosts is known to occur in the Agua Dulce Mountains in the southeastern corner of the CPNWR, though the current status (i.e., whether lesser long-nosed bats are still using the site) of the roost is unknown. Smaller day roosts are known in other mine tunnels, and are also suspected in other mines and natural rock crevices and caves. Short-term night roosts are known in natural caves, under the eaves of buildings, and inside several abandoned buildings associated with past ranching activities. It is likely that there is within- and between-season interchange between these colonies, perhaps even within and between nights (U. S. Fish and Wildlife Service 1997).

Flowers and fruits of saguaro, organ pipe cactus, and cardon provide nearly all of the energy and nutrients obtained by pregnant and lactating females roosting in the Sonoran Desert in the spring and early summer (U.S. Fish and Wildlife Service 1997). Saguaro, which is common and abundant throughout much of the BMGR, CPNWR, and OPCNM; and organ pipe cactus, which is common at OPCNM and localized in the eastern portions of CPNWR and BMGR, and portions of the TON, flower in May and fruit mature in June and July (Benson and Darrow 1982). Lesser long-nosed bats feed on both the nectar and fruits of these cacti. When cacti fruit are scarce or unavailable in late July or early August, agave nectar may be the primary food resource for lesser long-nosed bats in OPCNM, CPNWR, and TON. Agaves typically bolt or flower and provide a nectar resource for foraging bats from about July into October. Desert agave occurs in mountainous areas within the action area. As mentioned above under “Status of the Species”, fires and drought may affect some lesser long-nosed bat foraging habitat within the action area, though the extent is unknown.

A number of activities occur in the action area that could affect bats. For example, our 1997 biological opinion on the OPCNM General Management Plan, found that the proposed action could result in incidental take of bats from recreation, specifically from unauthorized human disturbance to the Copper Mountain maternity roost. Our 2003 biological and conference opinion for the installation of the international boundary vehicle barrier on the OPCNM did not find the action could result in incidental take, but found that the project would result in the disturbance of 70 acres of potential lesser long-nosed bat foraging habitat, including the destruction of up to 750 to 1000 saguaro and 80 to 100 organ pipe cacti (about 400 to 600 of these were to be salvaged). Our 2006 biological opinion on the CBP - Office of the Border Patrol’s installation of a permanent vehicle barrier (as well as access improvements, construction/improvement of border roads, and associated maintenance and patrol activities) along the border from the western end of the OPCNM barrier to Avenue C just east of San Luis, Arizona, did not find the action could result in incidental take. It did find, however, that the project would result in the direct disturbance of approximately 207 acres of potential lesser long-nosed bat foraging habitat, including the destruction of up to 50 saguaros and 3 organ pipe cacti. About 200 saguaros in the project corridor were to be avoided or salvaged.

High levels of undocumented immigrant activities and narcotics trafficking (see “Environmental Baseline, part E. Threats” for the Sonoran pronghorn for further detail about undocumented immigrant activity) and the associated damage resulting to the landscape from their activities, as well the activities of law enforcement in pursuit of undocumented immigrants, is becoming an increasing threat, not just to lesser long-nosed bats but to all wildlife of the region. As stated earlier, much illegal traffic occurs through the Growler Mountains, and Bluebird Mine on CPNWR in the Growlers was vandalized by suspected illegal immigrants in June 2002, which resulted in at least four dead bats and abandonment of the roost. The bats returned to the mine in 2005; however, abandoned the site once again after the fence was damaged by illegal immigrants. Both OPCNM and CPNWR are planning to implement additional protective measures at Copper Mountain and Bluebird Mine, such as the possible construction of bat-friendly gates at roost entrances to prevent illegal human entry. However, lesser long-nosed bats are sensitive to bat gates and may not adapt readily to their use. Therefore, use of bat gates to protect these roosts may not be a feasible alternative

EFFECTS OF THE ACTION

Effects to Roosts

No known or suspected roost sites will be directly impacted by the proposed action. At its closest point, the proposed project is approximately 15 miles from the Copper Mountain roost on OPCNM and the Bluebird Mine roost on CPNWR, and will have no direct impact on these sites or the Pinacate Cave roost site. Neither will the proposed action directly impact any potential roosting habitat (mines, caves, etc.) on OPCNM.

The proposed action may have an indirect positive effect on lesser long-nosed bats using the Copper Mountain roost if the fence decreases the amount of illegal pedestrian traffic in areas directly north of the fence (the Copper Mountain roost site is located 15 miles north of the proposed fence). Decreases in illegal pedestrian traffic near roost sites decrease the possibility of illegal entry into these sites which can cause disturbance to bats (i.e., roost abandonment). The proposed action, however, may adversely affect lesser long-nosed bats using the Bluebird Mine roost if the fence results in the redirection of and subsequent increase in illegal pedestrian traffic through the eastern portions of CPNWR. We anticipate the likelihood of this occurring is relatively low.

Effects to Cross-Border Movements

The effects of fences on lesser long-nosed bat movement patterns are unknown. We do not anticipate the fence will greatly impact cross-border movement of lesser long-nosed bats because they are agile fliers and because the fence will not be installed along the entire border of OPCNM. If the fence does impede their cross-border movements, the ability of lesser long-nosed bats using the Pinacate roost to obtain adequate food resources will be diminished given their heavy reliance on these resources in OPCNM.

Effects to Foraging Habitat

The proposed project will result in the disturbance of lesser long-nosed bat food plants (approximately 206 to 266 saguaros and 295 to 397 organ pipe cacti⁵); however, as stated in the "Description of the Proposed Action", CBP will salvage (remove and replant outside the project corridor) all columnar cacti less than three feet tall to the extent practicable (approximately 74 saguaros and 68 organ pipe cacti⁵) and will attempt to salvage all columnar cacti between three and six feet tall (41 saguaro and 55 organ pipe cacti⁵) that face danger of destruction within the project corridor as determined by the biological monitor and that have been identified using GPS-technology (either by GSRC or OPCNM). Because saguaros and organ pipe cacti less than 6 feet tall generally do not flower, the salvaged cacti, once replanted, will not be available as a forage resource for lesser long-nosed bats until they reach the size at which they flower. Construction activities associated with the proposed project will likely destroy approximately 91 to 126 saguaros and 172 to 285 organ pipe cacti on the OPCNM; approximately 115 to 140 saguaros and 112 to 123 organ pipe within the project corridor will be salvaged. Seedlings that

⁵ During a recent survey (February 2008), OPCNM staff counted a total of 140 salvageable saguaros and 112 salvageable organ pipe cacti and 126 non-salvageable saguaros and 285 non-salvageable. These numbers differ from those provided by GSRC; however, regardless of the exact number, all saguaros and organ pipe determined to be salvageable within the project footprint will be salvaged.

may have been missed during the surveys⁶ will likely be destroyed by project activities. Additionally, the roots and rooting areas of plants adjacent to the project corridor might also be damaged, which may affect plant vigor and cause increased plant mortality.

According to BP, the proposed project will result in the permanent disturbance of about 45 acres. Of this, about 17 acres was previously disturbed by the installation of PVBs; however, about 28 acres of potential lesser long-nosed bat foraging habitat adjacent to the international border will be newly disturbed. The 45 acres of disturbed ground will be susceptible to colonization by invasive non-native plants such as buffelgrass, Sahara mustard, and *Eruca vesicaria*. Non-native species may prevent the recruitment of lesser long-nosed bat forage species (columnar cacti and agaves) and may also carry fire that could also impact lesser long-nosed bat forage species. Most Sonoran Desert trees, shrubs, and cacti are very fire intolerant. For example, fires at Saguaro National Park resulted in greater than 20 percent mortality of mature saguaros (Schwalbe *et al.* 2000).

In addition to areas directly disturbed by the project, we anticipate some, unquantifiable amount of potential lesser long-nosed bat foraging habitat will be affected by altered hydrology and increased erosion and sedimentation caused by the fence and associated road. Though the Final EA says that the fence and road will be designed and constructed in a way that would not alter drainage patterns or cause increased downstream erosion and sedimentation, we expect some effects to hydrological function based on the effects of the OPCNM PVB. According to the Research and Endangered Species Coordinator at OPCNM, after significant rainfall events, debris becomes lodged on the OPCNM PVBs (six inch-wide posts on five-foot centers), which creates a dam that causes water to pool upstream (up to 100+ feet) and laterally (up to 300+ feet)(electronic mail from Tim Tibbits, October 4, 2007). We anticipate the fence and road will cause at least some changes in hydrology, as well as increased erosion and sedimentation.

Destruction of and damage to lesser long-nosed bat forage plants and disturbance of potential bat foraging habitat will reduce food available to the lesser long-nosed bat; this will likely adversely affect bats, especially during drought periods when forage availability is already impaired. It is difficult to evaluate the significance of the loss of foraging habitat; however, this loss is small compared to the large amount of potentially suitable foraging habitat available to the lesser long-nosed bat throughout the action area. However, it is still extremely important that effects to forage resources are minimized.

The proposed project may result in fewer disturbances to lesser long-nosed bat foraging habitat directly north of the fence if the fence decreases the amount of illegal pedestrian and pursuant law enforcement traffic in these areas. Construction of the fence, if it redirects illegal pedestrian and pursuant law enforcement activities to the east and west of the fence, however, may result in greater disturbance of lesser long-nosed bat foraging habitat in these areas. Trails and other soil disturbance can increase erosion, promote the spread of invasive plant species, and increase the potential for fires, which can adversely affect lesser long-nosed bat food resources. Off-road vehicle travel may damage the shallow root systems of large columnar cacti, causing loss of

⁶ Gulf South Research Corporation conducted surveys in August 2007 by walking, with 30 feet between two surveyors, the project corridor and recording the species and location of each columnar cactus seen.

vigor or death, and result in destruction of numerous columnar cacti, and can be assumed to destroy large numbers of seedlings. Also, off-road travel can cause changes in surface hydrology (from channelization of water in entrenched vehicle track prisms), which can adversely affect vegetation, including lesser long-nosed bat forage species.

Though nighttime construction is not anticipated, if it occurs within bat foraging habitat, bat foraging behavior may be temporarily affected. Because bats are nocturnal, we do not anticipate that daytime construction and maintenance activities will affect bat foraging behavior.

Conservation measures

Environmental design measures incorporated into the project, such as implementing erosion control techniques and constructing the fence in arroyos in a way that ensures proper conveyance of floodwater, will help minimize project impacts to lesser long-nosed bat foraging habitat.

Additionally, CBP's commitment to salvage, replant, and monitor the success of 238 columnar cacti; restore 84 acres within OPNCM, and control non-native plants within the project footprint, will help offset project impacts to lesser long-nosed bats.

CUMULATIVE EFFECTS

Most lands within the action area are managed by Federal agencies; thus, most activities that could potentially affect bats are Federal activities that are subject to section 7 consultation. The effects of these Federal activities are not considered cumulative effects. However, a portion of the action area also occurs on the TOIR, on private lands in the U.S., and in Mexico. Residential and commercial development, farming, livestock grazing, surface mining and other activities occur on these lands and are expected to continue into the foreseeable future. These actions, the effects of which are considered cumulative, may result in small-scale loss or degradation of lesser long-nosed bat foraging habitat, and potential disturbance of roosts. Illegal immigrant/smuggler activities, described above under "Cumulative Effects" for pronghorn, can result in loss or degradation of potential lesser long-nosed bat foraging habitat (impacts to foraging habitat have not been quantified however) and disturbance to and abandonment of roosts, as has been documented at the Bluebird Mine roost site. Though immigrant/smuggler activity has been high in recent years, it has declined recently, likely due to increased law enforcement presence (see Cumulative Effects for the pronghorn). In spite of these activities, lesser long-nose bat populations appear to be increasing or stable at many roost sites within and outside the action area.

CONCLUSION

After reviewing the current status of the lesser long-nosed bat, the environmental baseline for the action area, the effects of the proposed activities associated with the Lukeville fence project, and the cumulative effects, it is our biological opinion that the proposed action is not likely to jeopardize the continued existence of the lesser long-nosed bat. No critical habitat has been designated for this species, therefore, none will be affected. Our conclusion is based on the following:

1. Lesser long-nosed bat populations appear to be increasing or stable at many roost sites in Arizona and Mexico.
2. The project will not directly affect any known bat roosts in the action area (Bluebird Mine, Copper Mountain Mine, and Pinacate Cave).
3. The project may increase the possibility of disturbance to bats at the Bluebird Mine roost site if it results in the redirection of and subsequent increase in illegal pedestrian traffic through the eastern portions of CPNWR; however, we anticipate the likelihood of this occurring is relatively low.
4. The project will result in direct loss of 28 acres of lesser long-nosed bat foraging habitat, but disturbance to and loss of foraging habitat and forage plants will be minimized through environmental design measures, such as implementing erosion control, and offset through conservation measures, such as the salvage of columnar cacti and habitat restoration. Specifically, CBP will salvage (remove and replant outside the project corridor) all columnar cacti less than three feet tall to the extent practicable and will attempt to salvage all columnar cacti between three and six feet tall (an estimated 238 saguaro and organ pipe cacti will be salvaged) that face danger of destruction within the project corridor as determined by the biological monitor and that have been identified using GPS-technology (either by GSRC or OPCNM). Additionally, CBP will fund the restoration of 84 acres within OPCNM.

The conclusions of this biological opinion are based on full implementation of the project as described in the "Description of the Proposed Action" section of this document, including any conservation measures that were incorporated into the project design.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR 17.3). "Harass" is defined as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering (50 CFR 17.3). "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this incidental take statement.

AMOUNT OR EXTENT OF TAKE ANTICIPATED

We do not anticipate the proposed action will result in incidental take of lesser long-nosed bat for the following reasons:

1. The project will not directly affect any known bat roosts.
2. Impacts to bat foraging habitat and plants will be minimized and offset.

DISPOSITION OF DEAD OR INJURED LISTED SPECIES

Upon locating a dead, injured, or sick listed species initial notification must be made to the FWS's Law Enforcement Office, 2450 West Broadway Road, Suite 113, Mesa, Arizona, 85202, telephone: 480/967-7900), made within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling sick or injured animals to ensure effective treatment and care and in handling dead specimens to preserve the biological material in the best possible state.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. We recommend implementing the following actions:

1. In conjunction with OPCNM, CPNWR, BMGR, BLM, and TON facilitate restoration (i.e., re-contour entrenched areas, ensure the establishment of native vegetation, etc.) of areas degraded by off-route travel (by illegal immigrants/smugglers and OBP) within the action area (in addition to the areas that will be restored as part of the proposed action).
2. Monitor or provide funding to land managers to monitor future ecological conditions in the action area, including the overall success of active and passive restoration (i.e., the degree to which native vegetation becomes reestablished on illegal routes, the degree to which non-native invasive plants have decreased or increased, etc.).
3. Assist agencies in the control of non-native plants that may alter fire frequencies and intensities within OPCNM, CPNWR, BMGR, BLM, and TON, and in developing methods for controlling these species (lesser long-nosed bat Recovery Plan task 2).
4. Provide annual financial assistance (at least until illegal CPNWR immigrant/smuggler entry into southwestern Arizona is significantly reduced) to OPCNM, CPNWR, BMGR, BLM, and TON to monitor the effects of illegal immigrants/smugglers on lesser long-

nosed bat roosts and foraging habitat and to restore habitat and implement protective measures for lesser long-nosed bats, such as fencing around roost sites.

5. Provide annual financial assistance (at least until illegal immigrant/smuggler entry into southwestern Arizona is significantly reduced) to OPCNM, CPNWR, BMGR, and BLM to monitor the effects of illegal immigrants/smugglers on pronghorn and their habitat, particularly near forage enhancement plots, water sites, and the semi-captive breeding pen, and to restore habitat and implement recovery actions for the Sonoran pronghorn.
6. Provide ongoing financial support to agencies to implement the Sonoran pronghorn and lesser long-nosed bat recovery plans, as appropriate.
7. Tucson and Yuma Sector offices should each have a full-time biologist or environmental specialist to assist OBP compliance with ESA, NEPA, and other environmental requirements; to provide environmental training to agents; and to coordinate with agencies regarding environmental issues.

In order for us to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, we request notification of the implementation of any conservation recommendations.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the action outlined in this biological opinion. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner that causes an effect to the listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to a listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

We appreciate CBP's efforts to identify, minimize, and offset effects to listed species from the project. For further information, please contact Erin Fernandez (x238) or Jim Rorabaugh (x230) of our Tucson Suboffice at (520) 670-6150. Please refer to the consultation number 22410-2008-F-0011 in future correspondence concerning this project.

Sincerely,

Steven L. Spangle
Field Supervisor

Mr. George Hutchinson

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cc: Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ
Superintendent, Organ Pipe Cactus National Monument, Ajo, AZ
Refuge Manager, Cabeza Prieta National Wildlife Refuge, Ajo, AZ
Director Construction and Support Office, Army Corps of Engineers, Ft. Worth, TX (Attn: Charles McGregor)
Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ
Regional Supervisor, Arizona Game and Fish Department, Tucson, AZ
Regional Supervisor, Arizona Game and Fish Department, Yuma, AZ
Gulf South Research Corporation, Baton Rouge, LA (Attn: Chris Ingram)
Chairperson, Tohono O'Odham Nation, Sells, AZ

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TABLES AND FIGURES

Table 1. A summary of population estimates from literature and field surveys for Sonoran pronghorn in the U.S.

Date	Population estimate (95 percent CI ^a)	Source
1925	105	Nelson 1925
1941 ^b	60	Nicol 1941
1957	<1,000	Halloran 1957
1968	50	Monson 1968
1968-1974	50 - 150	Carr 1974
1981	100 - 150	Arizona Game and Fish Department 1981
1984	85 - 100	Arizona Game and Fish Department 1986
1992	179 (145-234)	Bright <i>et al.</i> 1999
1994	282 (205-489)	Bright <i>et al.</i> 1999
1996	130 (114-154)	Bright <i>et al.</i> 1999
1998	142 (125-167)	Bright <i>et al.</i> 1999
2000	99 (69-392)	Bright <i>et al.</i> 2001
2002	21 (18-33)	Bright and Hervert 2003
2004	58 (40-175)	Bright and Hervert 2005
2006	68 (52-116)	Unpublished data

^a Confidence interval; there is only a 5 percent chance that the population total falls outside of this range.

^b Population estimate for southwestern Arizona, excluding Organ Pipe Cactus National Monument.

Table 2. Comparison of U.S. Sonoran pronghorn population surveys, 1992-2006.

Date	<u>Pronghorn observed</u>		<u>Population estimates</u>		
	On transect	Total observed	Density estimate using DISTANCE (95 percent CI ^a)	Lincoln-Peterson (95 percent CI)	Sightability model (95 percent CI)
Dec 92	99	121	246 (103-584)	---	179 (145-234)
Mar 94	100	109	184 (100-334)	---	282 (205-489)
Dec 96	71	82 (95 ^b)	216 (82-579)	162 (4-324)	130 (114-154)
Dec 98	74	86 (98 ^b)	---	172 (23-321)	142 (125-167)
Dec 00	67	69 ^b	N/A	N/A	99 (69-392)
Dec 02	18	18	N/A	N/A	21 (18-33) ^c
Dec 04	39	51	N/A	N/A	58
Dec 06	51	59	N/A	N/A	68

^a Confidence interval; there is only a 5 percent chance that the population total falls outside of this range.

^b Includes animals missed on survey, but located using radio telemetry.

^c Jill Bright, Arizona Game and Fish Department, pers. comm. 2003

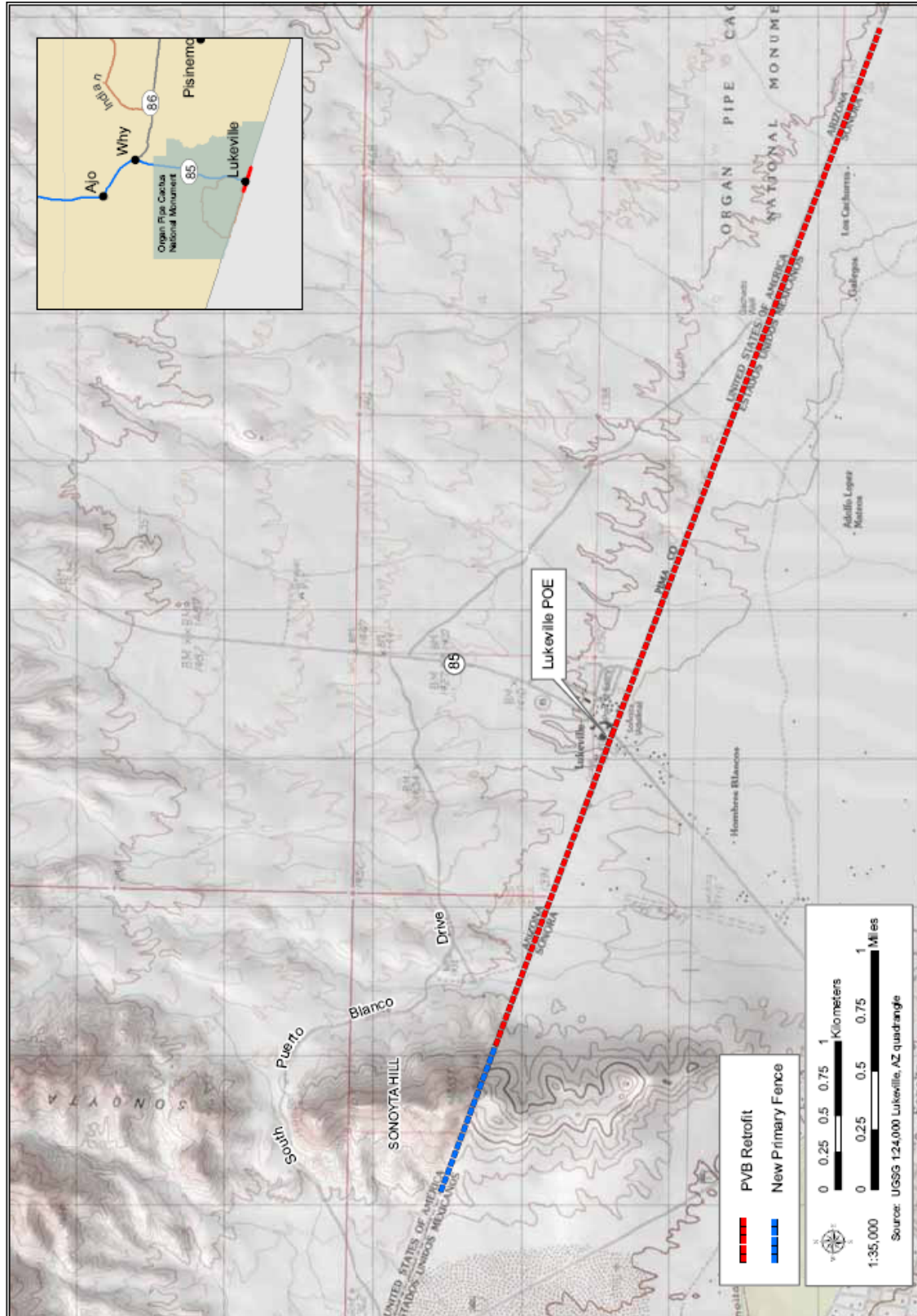
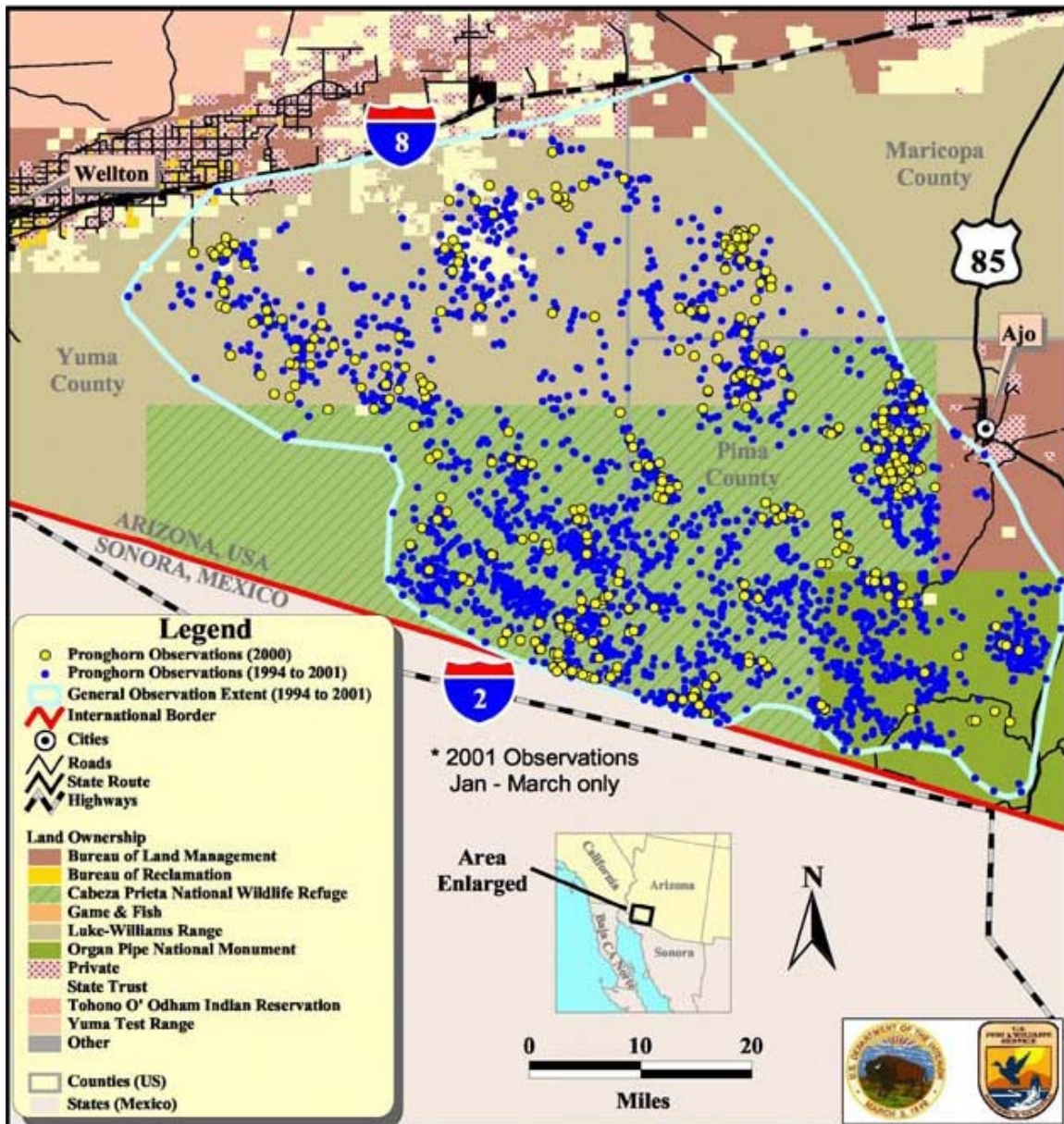
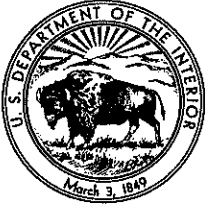
Figure 1. Proposed Lukeville Primary Fence Project corridor (Final EA, November 2007)

Figure 2-1: Proposed Action Alternative

Figure 2. Historic range of Sonoran pronghorn in the United States and Mexico.

Figure 3. Current Sonoran pronghorn distribution in the United State: Records from 1994-2001.





United States Department of the Interior

NATIONAL PARK SERVICE
Organ Pipe Cactus National Monument
10 Organ Pipe Drive
Ajo, Arizona 85321-9626

IN REPLY REFER TO:

December 19, 2007

Mr. Eric W. Verwers
Director Engineering, Construction and Support Office
Department of the Army
Fort Worth District, Corps of Engineers
P.O. Box 17300
Fort Worth, Texas 76102-0300

Subject: Comments on November 2007 Final Environmental Impact Statement for the proposed installation of primary fence near Lukeville, Arizona

Thank you for the opportunity to comment on the subject document. We offer the following comments and recommendations.

General Comments

Organ Pipe Cactus National Monument (OPCNM) can not support the inclusion of the proposed 7 acres over Sonoyta Hill outside of the Roosevelt Reservation for construction of a road to access proposed work. National Park Service policy and practice in this area is clear. The decision to issue or deny a permit for a special use such as this proposed undertaking flows from the appropriate compliance under the National Environmental Policy Act (NEPA), Section 106 of the National Historic Preservation Act of 1966 (NHPA), and other applicable laws. This November Environmental Assessment is inadequate as it lacks appropriate alternatives for construction, design of proposed work and mitigation to list a few of the concerns. It is within our mandate to protect these very important resources to this ecosystem and feel that with additional technology being discussed some fencing such as this proposed undertaking would not be necessary. The use of technology, such as the proposed SBInet (Southern Border Initiative network), should be evaluated with fence placement since they could support each other. The technological solution would cause much less long-term impacts to natural and cultural resources on OPCNM than would the proposed pedestrian fence.

The November 2007 Final Environmental Assessment (FEA) states that the pedestrian fence would be ineffectual without SBInet and vice versa. Since SBInet and the pedestrian fence form the basis for the border enforcement strategy in the OPCNM area, these actions should be evaluated in one NEPA document and not evaluated separately. We believe the proposed alternatives will have a significant and long-term impact on resources managed by the NPS.

The proposed action in the Executive Summary and the Alternatives does not agree. The alternative mentions the requirement of a construction footprint of 150 which is a major attribute of this project and should be in the summary if that is the intent.